Occasional Paper Number 1.

History of Research and a Description of the Biota and Ecological Communities of the Edmund Niles Huyck Preserve and Biological Research Station

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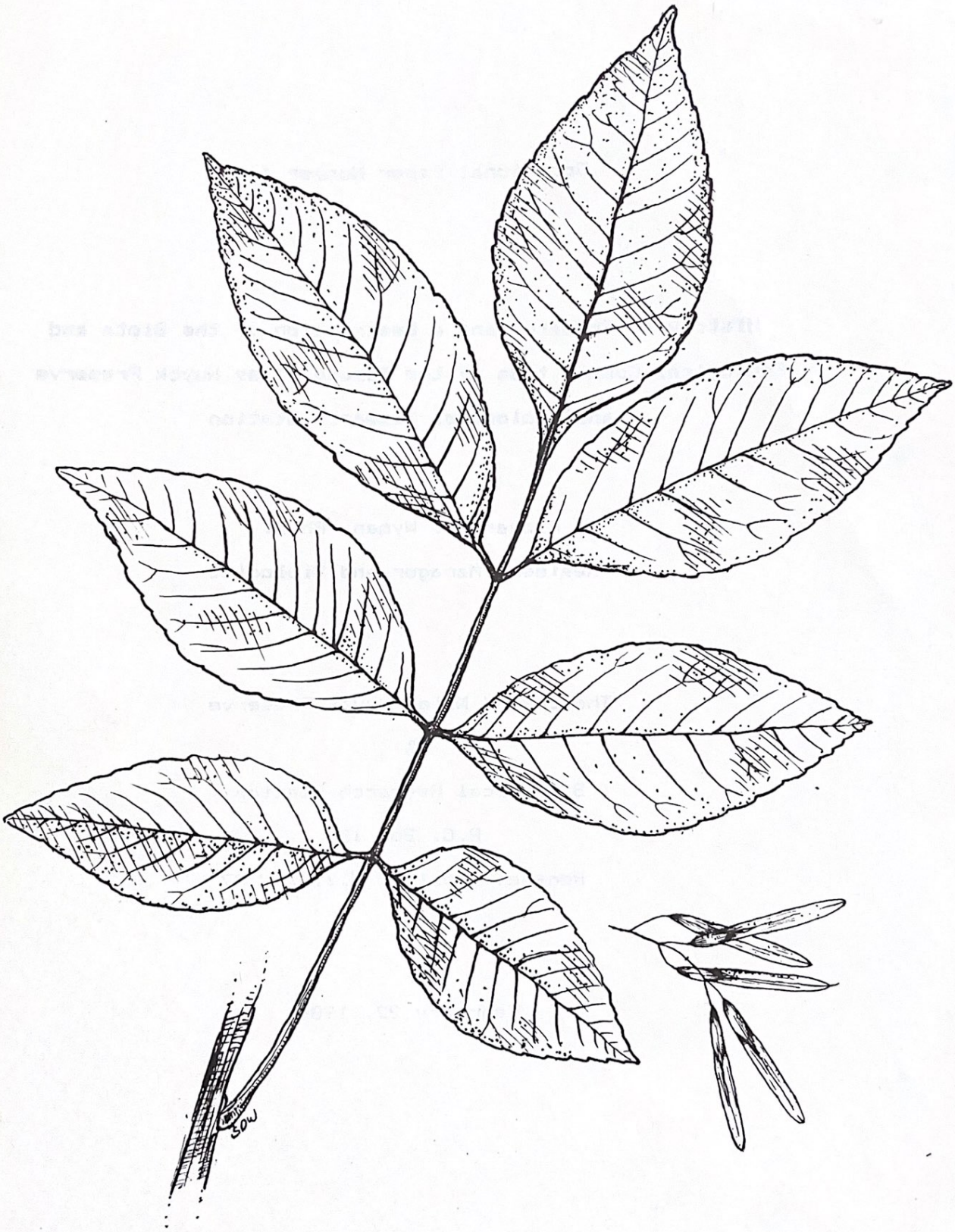

Preface

It is rare today to find places where people have thought enough about the future to see that natural areas need to be protected to provide an undisturbed reference against which to compare what happens when humankind alters the landscape to his liking. The Huyck Preserve, with its fifty years of data on its forest and wildlife, is just such a place, and this document provides the data with which we can begin to build a complete picture of the natural hardwood-hemlock ecosystem of the northeast United States. Because forests require several hundred years after a major disturbance, such as clear-cutting, to reach a more or less pre-disturbance state, many more years of careful work are required to complete our picture. However, it is good to remember that the first steps of a journey are often the most difficult to take.

The Biological Research Station of the Edmund Niles Huyck Preserve celebrates its fiftieth year in 1988. During that 50 years, more than 155 scientists have sought to increase our understanding of natural processes on the Huyck Preserve. Because of this body of work, significant achievements have occurred in the fields of evolution, ecology, natural history, and environmental biology.

This fifty year period also saw the emergence of the study of ecology and the growth of that discipline from that of documenting the presence and absence of species, to that of a rigorous science of testing hypotheses regarding the control of plant and animal numbers, the adaptiveness of behavior, and the mechanisms responsible for patterns scientists observe in nature.

This publication attempts to distill some of the information that has been gathered during the last one-half century and helps put into perspective the kinds of studies that will be needed in the future. It represents to the layman and expert alike, the wealth of information that has been accumulated and the immense amount of information that is still needed.

These studies have given us insight into how bats navigate in complete darkness, how insects and amphibians defend themselves against their predators, how forests mature, how water quality is affected by those maturing forests, and how man's past activities have affected the kinds of plants and animals that now occur. It can only be hoped that the next fifty years will yield an equally impressive list of accomplishments as are documented in this work.

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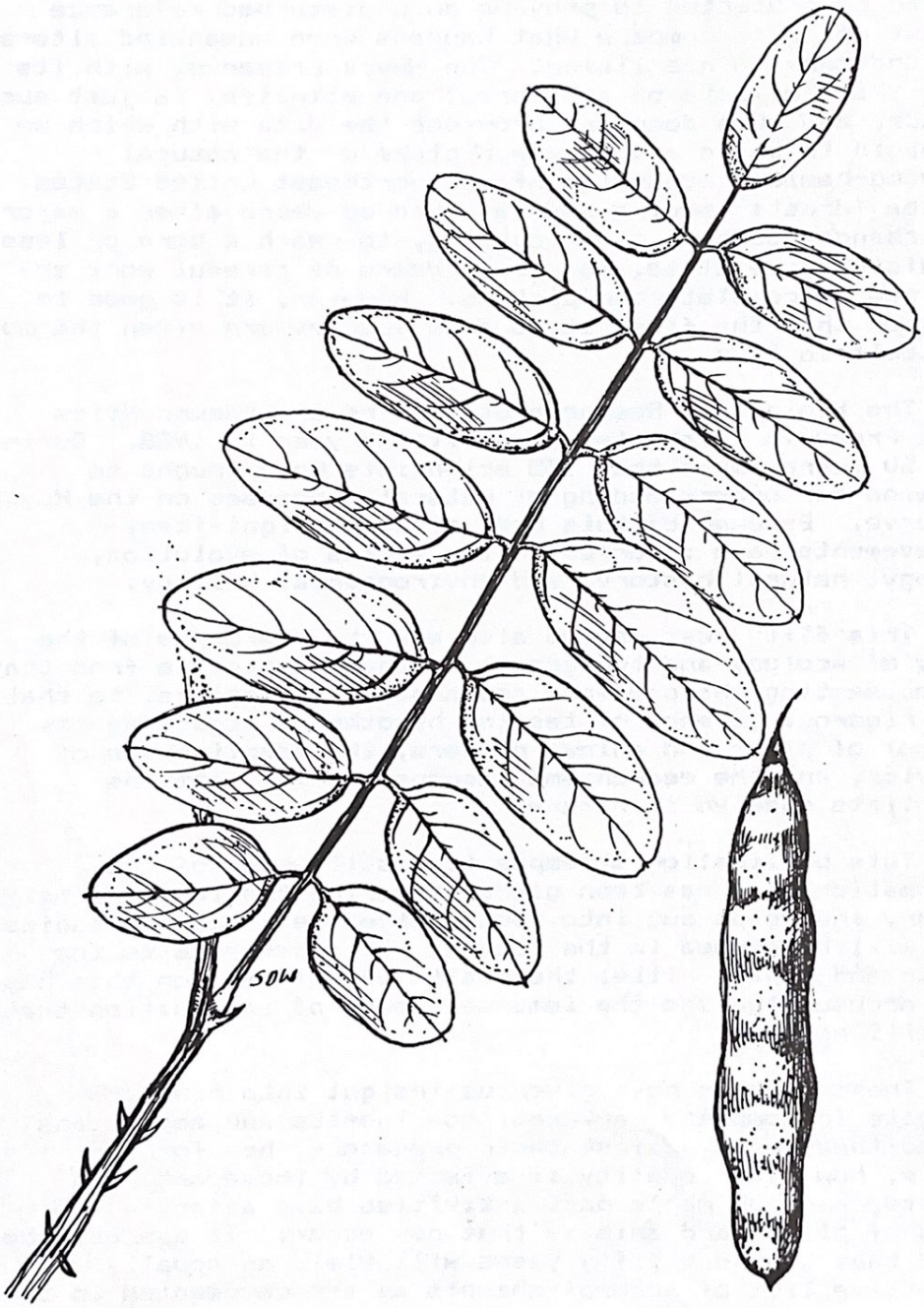
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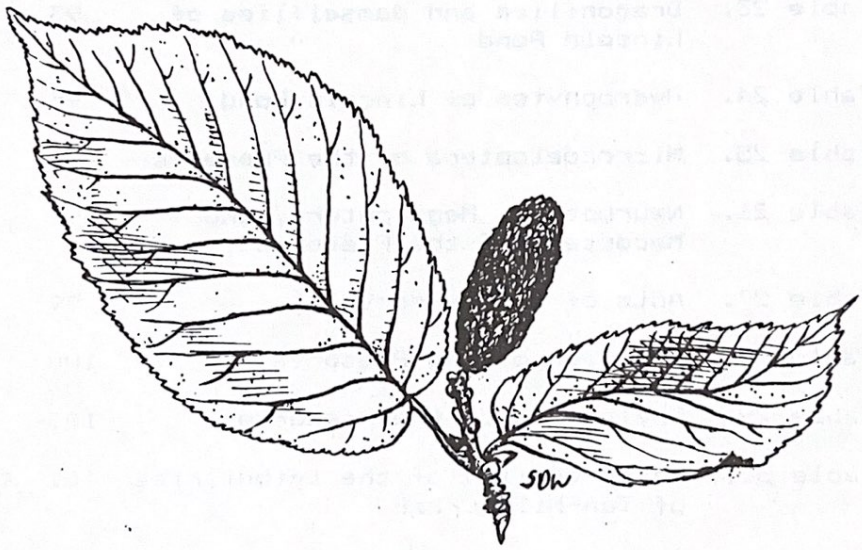

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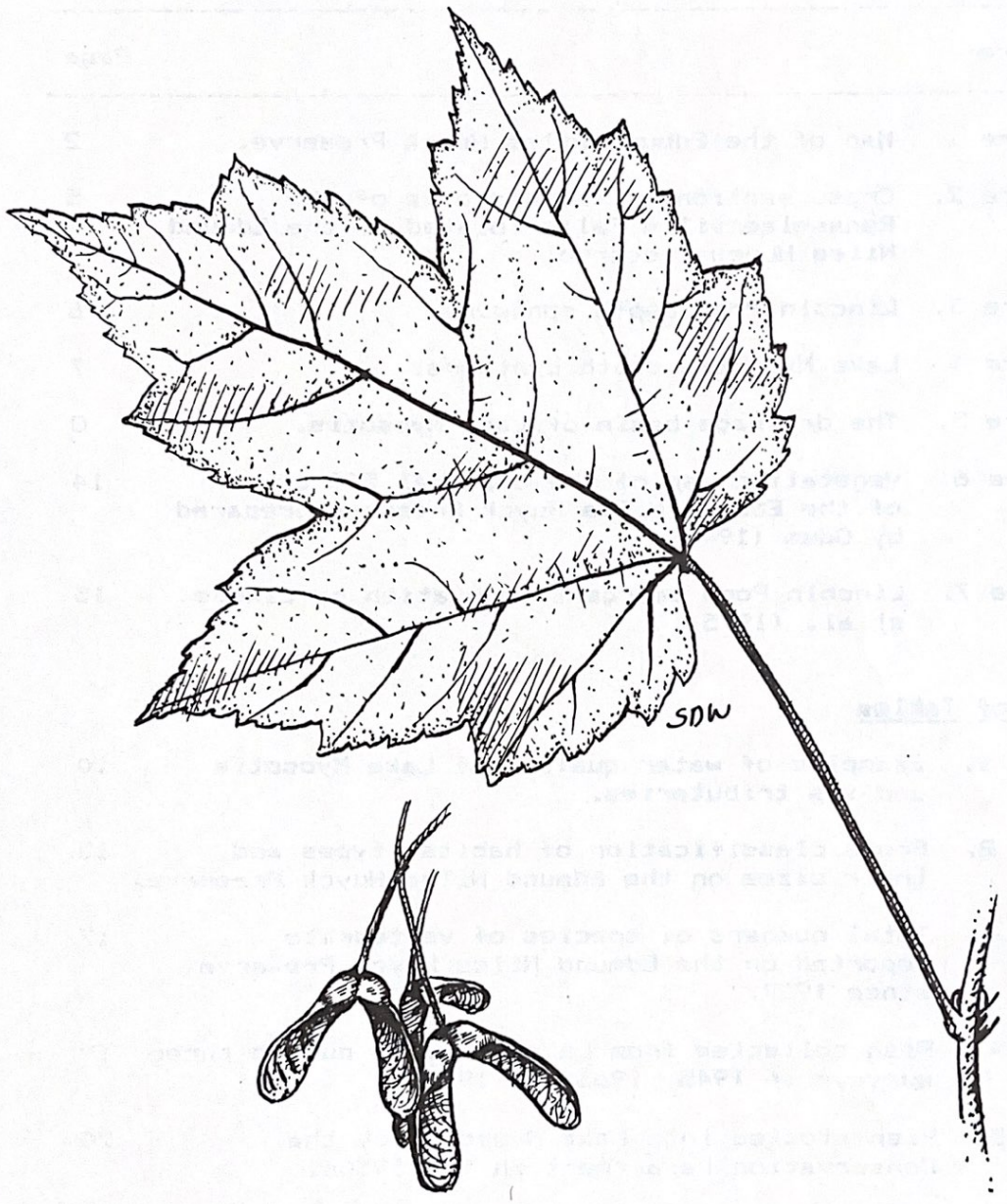
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Introduction

The purpose of this paper is to make available a general description of the Edmund Niles Huyck Preserve and Biological Research Station. While research has been conducted at the Station since 1937, no one document is available that describes the Station's activities since that time.

The E. N. Huyck Preserve was founded in 1931 and the Biological Research Station was organized in 1938. The original land included some 200 hectares (500 acres) that have remained undisturbed since about 1890. Since 1931, another 600 hectares (1,500 acres) have been added making the Preserve almost 800 hectares (2,000 acres). Since 1937, 155 scientists have conducted about 250 research projects on the Huyck Preserve through its Biological Research Station. These scientists have published over 170 papers and submitted an additional 91 final reports.

Location

The Preserve is located on the western edge of the Helderberg Plateau (42 10' lat., 74 10' long.) in the Towns of Rensselaerville and Berne, New York (Figure 1). The elevation ranges from 360 to 650 m. The Plateau, 117 km square (45 miles square), has a well-defined 260 meter escarpment that rises abruptly from the Hudson Valley in the east and the Mohawk Valley to the north. The elevation of the Plateau rises toward the west reaching a maximum of 600 meters on the westernmost portion of the Preserve. Catskill Creek to the southwest and Schoharie Creek to the northwest separate the Plateau from the Catskill Mountains.

The Preserve is within the upper watershed of Ten-Mile Creek, a tributary of the Catskill Creek and the Hudson River. Ten-Mile Creek has been impounded since about 1800 at two locations on the Preserve to form Lake Myosotis (44 hectares) and Lincoln Pond (4 hectares).

History

The Huyck Preserve is in the western portion of what was the "Manor of Rensselaer Wyck," established in 1629 by Kilean Van Rensselaer of Amsterdam, through a "Charter of Privileges and Exemptions" from the Dutch West India Company. In 1785, the Manor was surveyed and subdivided into 160 acre lots. These lots were then leased to settlers. By 1787, there were 67 settlers in what is now the Town of Rensselaerville.

The settlers clear-cut the hemlock and deciduous forests from all but the steepest ravines and north-facing windbreaks. The lumber was used in construction or burnt to provide potash while the bark of the hemlock provided tannin for the curing of hides. Farming followed the clearing of the land. Over time farm productivity decreased and with the discovery of more productive lands to the west, many of the farmers abandoned their farms and

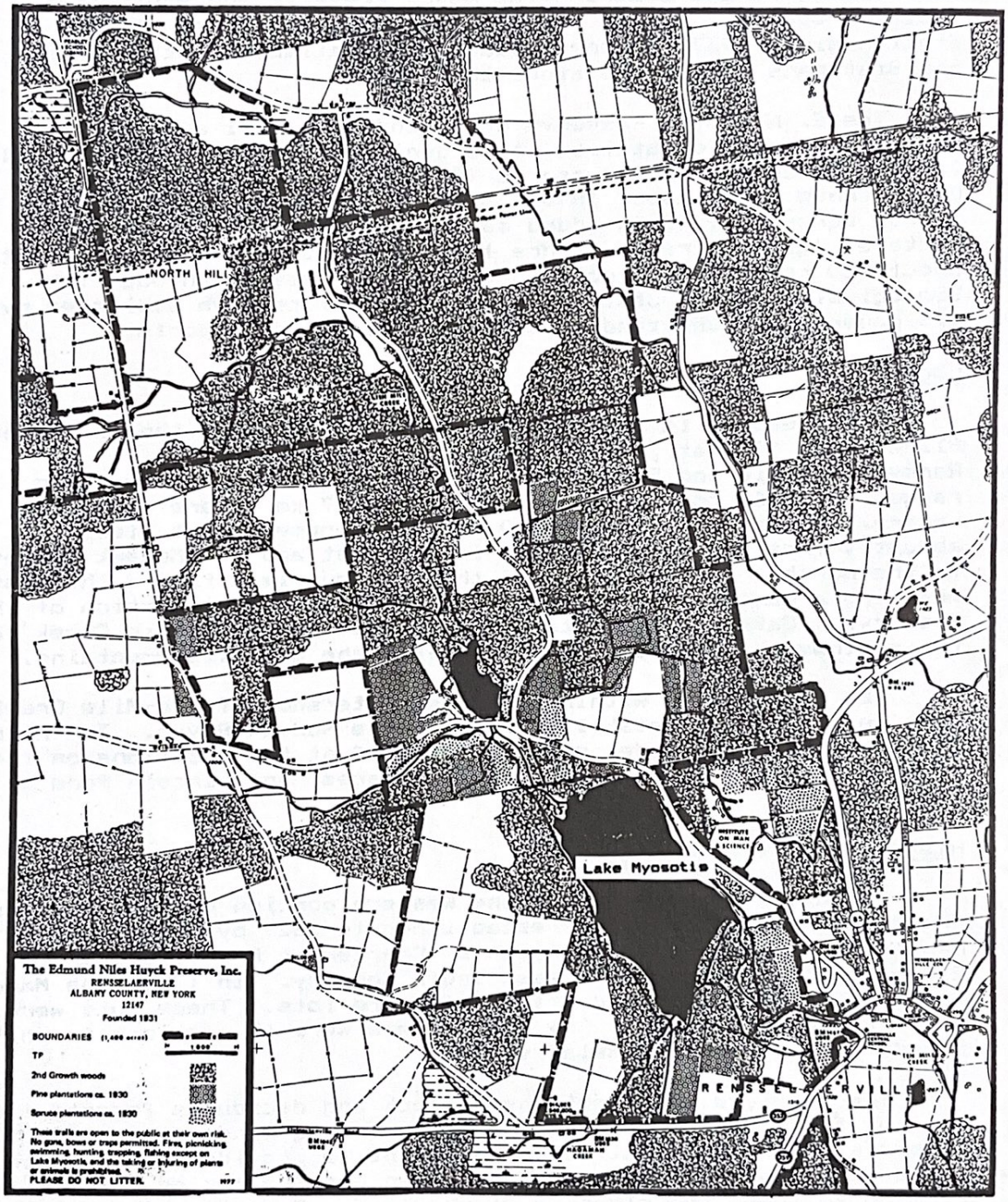


Figure 1. Map of the E. N. Huyck Preserve (an additional 250 acres are not shown on this map).

moved west. Those who remained found the watershed of Ten-Mile Creek a barren ecosystem with intermittent streams and spring freshets. The two dams on the Preserve were built around 1800 to provide a safe and reliable water supply for the mills in the town.

In 1870, the partnership of Waterbury and Huyck founded the first felting mill in North America (the remains of this mill are still visible at the foot of the Rensselaerville Falls on the southern portion of the Preserve). Farmers began raising cereal grains to feed sheep to provide the wool for the mill. By 1879 weeds had so invaded the overgrazed fields that the local fleece was no longer acceptable. In addition two spring freshets had destroyed the felt mill and its associated dams. The partnership was dissolved and Huyck established a new mill in Albany. The Town population was then reported to be 3,629 of which over 300 moved with the mill. The population of the Town in 1987 was less than half of that in 1870.

All of the original 160 acre lots are numbered and delineated by stone walls. The ownership of each lot and its agricultural history can be traced back to 1786 and these records are maintained in the Rensselaerville Library. Many of the lots on the Preserve have been removed from agriculture for over a century, and other portions appear to never have been cleared, thus giving the Preserve a mosaic of community types based on age since disturbance.

The Mill property was one of the tracts owned by the Huycks in the late 1800's. During this century, the Huyck family and the Preserve have sought to acquire the remaining lands of the upper Ten-Mile Creek watershed. The Preserve was incorporated in Albany in 1931 in order " ... to preserve the natural beauty of the Rensselaerville Falls, Lake Myosotis, Lincoln Pond and the land around ..., to increase the general knowledge and love of nature, particularly that of trees and wildlife, by maintaining a demonstration of reforestation and forest culture, and by providing means for increasing and protecting the birds, wild animals and fish within the boundaries of said land." In 1960 the E. N. Huyck Foundation was established " ... to promote research, scientific study and education in any and all kinds of fauna and flora, either directly or through individuals or organizations qualified to undertake such work."

The Preserve began with 200 hectares (500 acres), including the mill tract, Rensselaerville Falls, Lake Myosotis and Lincoln Pond. This property has not been subject to manipulation since the late 1800's and is now maintained as a natural control area, where only non-destructive research may take place. Since 1939 the Preserve has acquired an additional 600 hectares (1,500 acres). Some of the newly acquired lands are used for controlled manipulative research while others are allowed to succeed naturally. Acquisitions by the State Department of Environmental Conservation (Partridge Run Game Management Area) and the Preserve

have resulted in about 4,000 contiguous hectares (10,000 acres), almost the entire upper watershed of Ten-Mile Creek, being set aside for conservation, research, and education.

Geology, Hydrology and Water Quality

The geology of the Helderberg Plateau was described by Goldring (1935) and the geology of the Preserve was recently described by Fleisher (1986). The Plateau is a series of Silurian and Devonian limestones, sandstones and shales. These beds constitute the base on which rests the later Devonian strata of the Catskill Mountains. Fossil remains indicate deposition occurred in brackish lagoons, on terrestrial coastal plains and as near-surface deposits of a delta platform (Fleisher, 1986). The Preserve and Ten-Mile Creek lie within what is referred to as a hanging or suspended valley on top of the Helderberg Plateau. There are multiple waterfalls located within the Rensselaerville Gorge, the largest of which is a 35m falls located on the Preserve (Figure 2). No biological studies of the falls have been conducted. There are two sandstone layers exposed in the falls that signal a change from marine to terrestrial geologic condition. The dominant fossils of the lower beds are primarily pelecipods and brachiopods, but also include many corals, worm trails, gastropods, pteropods, cephalopods, trilobites, and crinoids. Most of these fossils are represented in the reference collection in the Eldridge Research Center of the Huyck Preserve.

The hydrology of the Preserve was described and analyzed by Hay (1983). There are three permanent streams on the Preserve one of which flows into Lincoln Pond. The limnology of Lincoln Pond was studied by Likens et al. (1976, Figure 3). Lincoln pond drains into Ten Mile Creek and then into Lake Myosotis. Hagaman Creek also empties into Lake Myosotis (Figure 4). There are a least fifty smaller intermittent streams that flow during snow melt or during heavy rains. The drainage basin for Lake Myosotis is 16.97 square kilometers. Because the soils are thin and the bedrock is highly fractured, some of the precipitation moves into the ground water and is not measurable through the analysis of stream flow. The Preserve has plans to establish one or more stream gaging stations on tributaries of Ten-Mile Creek to allow for a more in-depth study of the hydrology and nutrient cycling on the Preserve.

Lake Myosotis and Lincoln Pond are both shallow, eutrophic water bodies. Morphometric data for both Lakes are included in Appendix 1. Water quality data for Lake Myosotis, Lincoln Pond, and Ten-Mile Creek are also presented in Appendix 1.

Siegfried (1985) studied the water quality of streams draining into Lake Myosotis to determine the source of nutrient input into the lake because the lake is a drinking water source for the hamlet of Rensselaerville. He showed that at times the nitrogen and phosphorus loads were higher in Hagaman Creek and at other times they were higher in Ten-Mile Creek draining into Lake

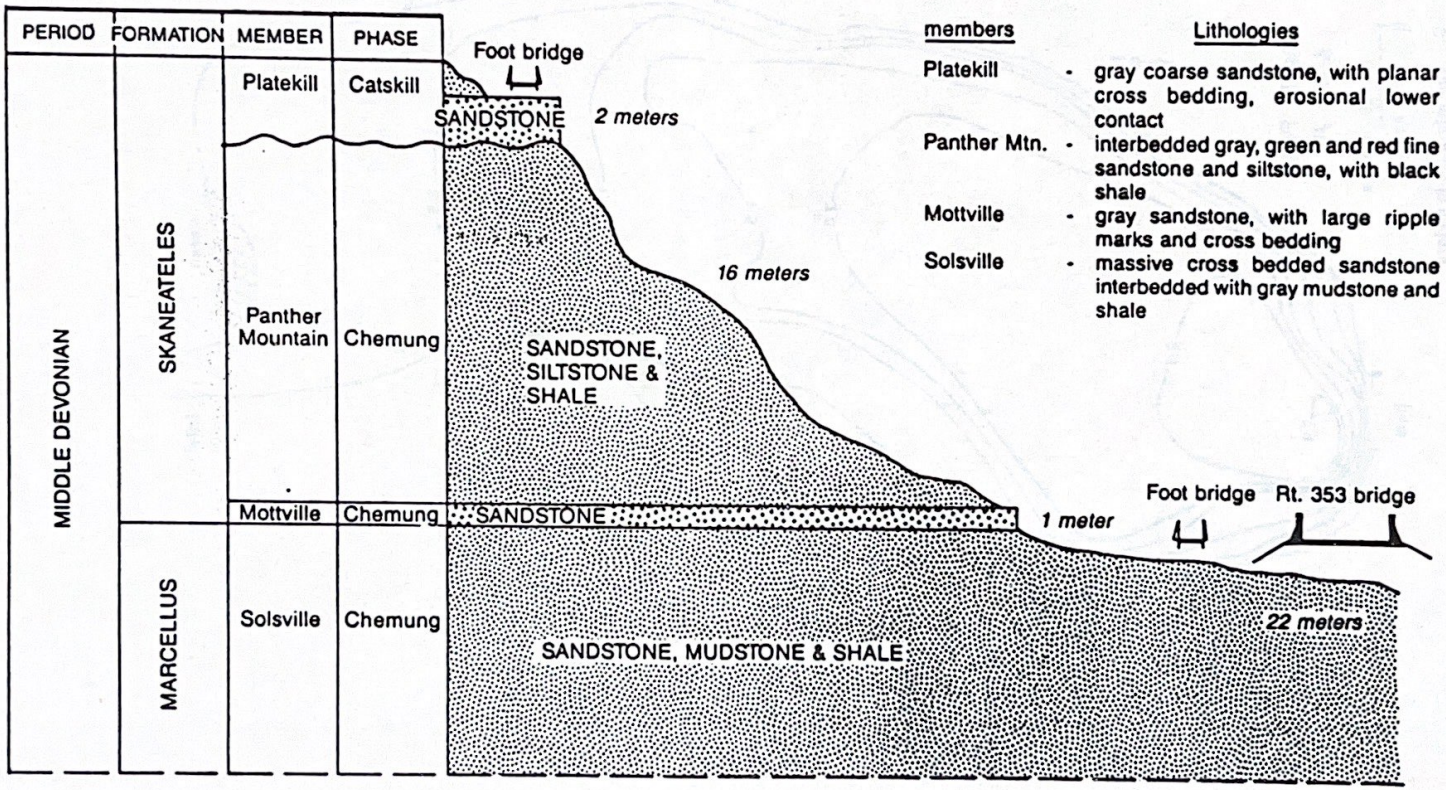


Figure 2 Schematic cross section and stratigraphic column, Rensselaerville Falls

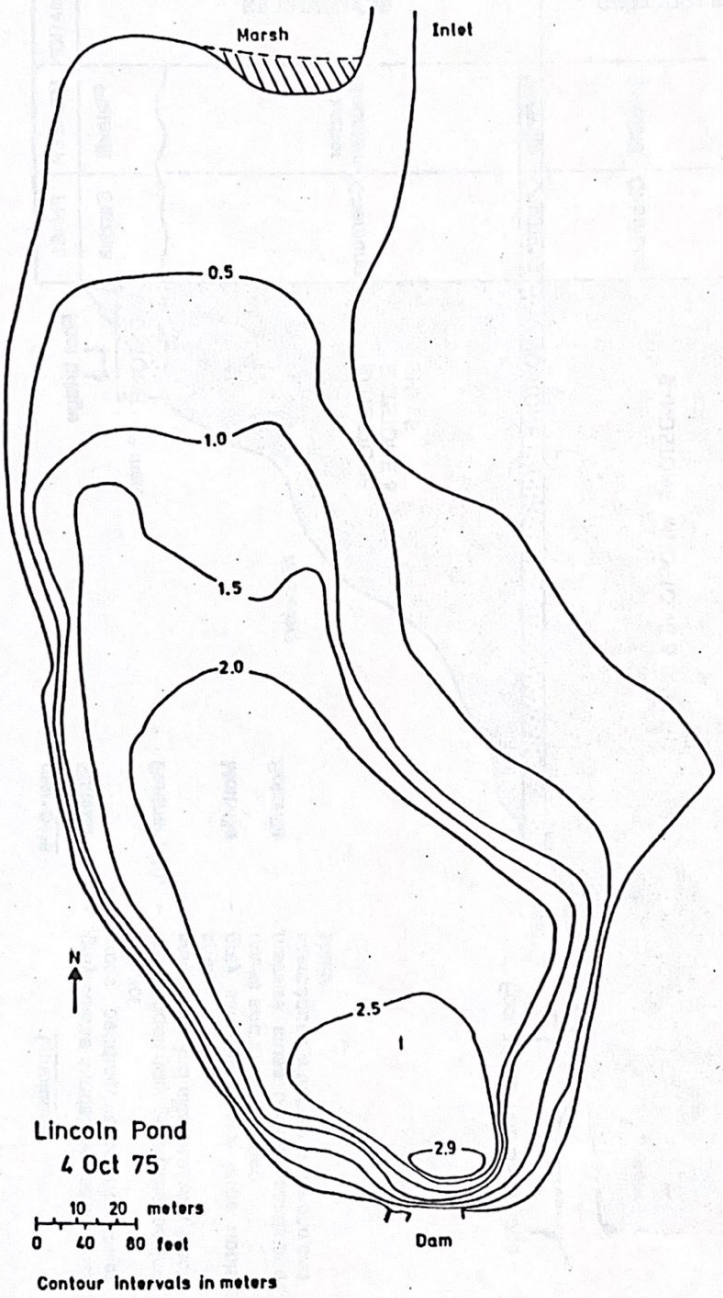


Figure 3. Morphometric map of Lincoln Pond (Likens et al. 1976)

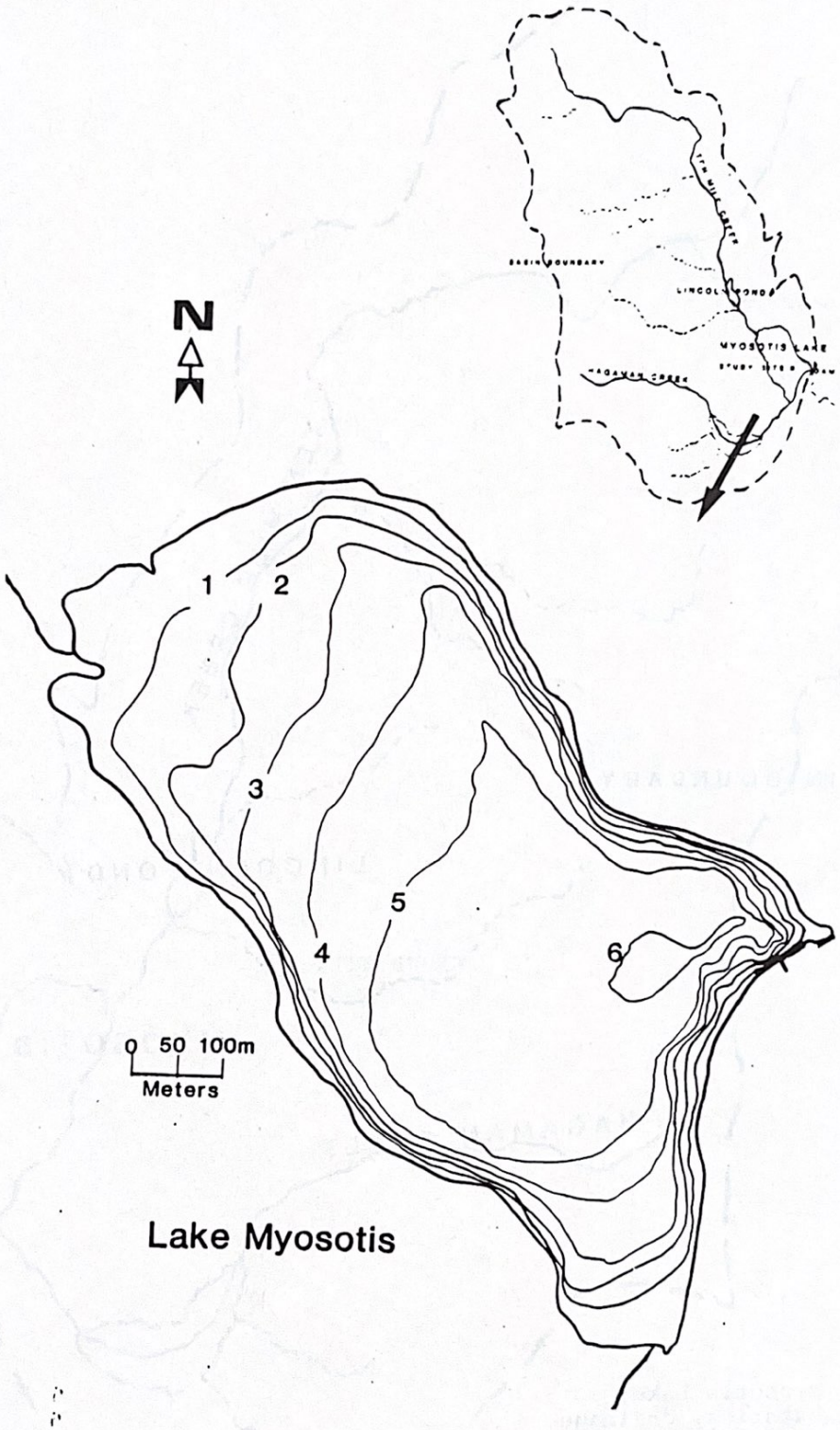


Figure4.. Bathymetric map of Lake Myosotis, location within drainage basin, major tributaries, and study site (Siegfried 1985).

Figure 5. Myosotis Lake; major tributaries, drainage basin (Siegfried 1985).

Myosotis. His data also showed higher phosphorus concentrations in Lake Myosotis during 1985 than in either of the major streams emptying into it (Table 1). Wyman (1988c) has been sampling the water quality of Hagaman Creek, Ten-Mile Creek above and below Lake Myosotis and a stream known locally as Trout Creek. Trout Creek empties into Ten-Mile Creek below Lincoln Pond. This analysis has shown that on many occasions the phosphorus and nitrogen concentrations were higher in Ten-Mile Creek below the Lake than in any streams emptying into the Lake. However both Hagaman and Trout Creeks have average higher phosphorus values than does Ten-Mile Creek above and below Lake Myosotis. These data suggest that a considerable portion of the nutrient load in Lake Myosotis comes from the sediments already within the Lake.

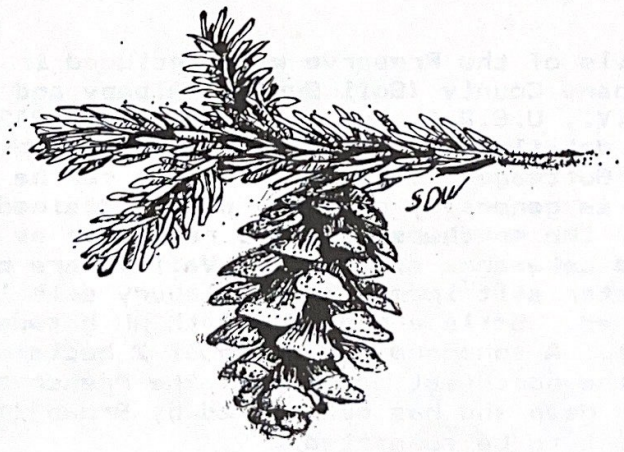
Siegfried (1985) also felt that internal loading accounted for the main source of nutrients in the lake and that these nutrients were largely responsible for the frequent summer algal blooms. Apparently the there is a thick sediment layer on the bottom of the Lake that is probably partially a result of past runoff from formerly agricultural lands and partially the result of the treatment of the lake for many years with copper sulfate. This treatment kills algae in large quantities and the dead algae accumulate on the bottom and contribute to the sediment build-up. Observations that support this notion are that when the lake shows an algal bloom the water from the tributaries remains clear and even produces a clear fan of water protruding into the lake. Also on 6 June 1987 the lake was observed to be clear with over four feet of visibility. On June 9 through 10 winds blew at 20 to 25 miles per hour our of the northwest and the Lake immediately turned turbid. This suggests that the winds mixed the upper nutrient-poor waters with lower nutrient-rich waters (as a result of close proximity to the sediment) and made available nutrients for algal growth in the well-lit upper portion of the lake. Because the addition of copper sulfate has ceased and the inputs of agriculturally derived nutrients has been greatly reduced, the blooms of algae will over time be reduced. However, during low flow years, algal blooms may still be expected to occur.

Soils

The soils of the Preserve were included in a survey of the soils of Albany County (Soil Survey: Albany and Schenectady Counties, N.Y., U.S.D.A. ser. 1936, No. 16, 1942) and more recently, a detailed analysis of the topographic soil pattern was prepared by Gottsagen (1985). The soils can be characterized in upland area as generally shallow, poorly drained, glacial culvers, silt loam in the southwest and the remainder as shallow residual well drained Lakawanna silt loam. Valleys are of friable glacial till of Wooster silt loam, and Middlebury silt loam, which are poorly drained. Soils are acidic with pH between 3.5 and 5 (Zotz et al. 1987). A sphagnum bog of about 2 hectares (5 acres) is located on the northwest portion of the Preserve. The bog is eight meters deep and has been cored by Brown (1958) and recently by Ibe (report to be submitted).

Table 1. Upper part of table shows mean values of water quality measurements for phosphorus (as PO4) and nitrogen (as NO2) at four locations within the Ten-Mile Creek watershed for Feb. 20, March 15, April 6, May 8, June 1, July 10, August 10, and Sept. 12, 1987. Lower part of table shows values reported by Seigfreid (1985) and Likens (1975).

Location	Nitrogen (mg/l)	Phosphorus (mg/l)
Hagaman Creek	0.026	0.071
Trout Creek	0.014	0.063
Ten-Mile above Lake Myosotis	0.022	0.043
Ten-Mile below Lake Myosotis	0.036	0.055
Siegfried (1985)		
Hagaman Creek	0.014 (5)	0.014 (5)
Ten-Mile above Lake Myosotis	0.077 (9)	0.038 (7)
In Lake Myosotis	0.030 (7)	0.038 (7)
Likens et al. (1975) In Lincoln Pond	<0.05	<0.05



Recently, work has been conducted on the soils and their effects on understory vegetation of various conifer plantations by Tobiessen and Werner (1980) and of the deciduous forest by Beatty (1984). Beatty and Stone (1986) described the types of soils generated by tree falls.

Climate

The climate of the Helderberg Plateau is essentially continental although influenced to some extent by the Hudson River, Great Lakes and Atlantic Ocean. Winters (Dec. - Feb.) are cold (mean = -6.6C) to frigid (min. = -32C) with ample snow (mean = 1.3 meters/year). Summers (June-Aug.) are warm (mean = 21C) with short periods where 38C may be reached. Average frost-free days are approximately 150 days with first snowfall as early as late October, but more often late November and persisting into April. However, on October 4, 1987, 45 cm of snow fell during a single 24 hr period. Because of the altitude (380 to 600 meters) the climate on the Plateau is more severe than similar laditudinal locations with low altitude. Rainfall is typically higher in the spring and fall than in the summer, with an annual mean total of 90 cm. Summer precipitation frequently is in the form of thunderstorms in the late afternoon. Prevailing winds are northerly in the winter and northwesterly in the summer. Variations in elevation, topography and exposure have considerable local climatic effect. The Biological Research Station maintains a weather station that gathers data on wind speed and direction, relative humidity, temperature, and precipitation.

Biota

The Preserve lies in the ecotone between the well-marked northern or transcontinental coniferous forests biome and the eastern deciduous biome. It is an example of an ecotonal area where plants, animals, and climate show characteristics intermediate between two major regions. Located on the Preserve are examples of many distinct habitat types (Table 2). The dominant habitats are early and late successional hardwood-hemlock forests (40%) followed by early and late successional old-fields (33%). About 16% of the Preserve consists of lakes, ponds, streams, bogs, and low-lying swampy areas.

The Preserve is surrounded by farmlands much of which has been abandoned. In common with large sections of hill country in the northeast, the region was formerly agriculturally prosperous and more densely populated than today. As a result, much of the land is being reclaimed by native flora and fauna. However, many species on the Preserve are introduced.

1. Plants

The Biological Research Station was established in 1938 following an inventory of the flora and fauna by W. J. Hamilton in

1937. The identification of the principal communities of the Preserve by Odum (1943, Figure 6) and the subsequent analyses by Russell (1955 a & b, 1964), Mackey (1977), and Wyman et al. (1988) have established a history of the vegetation and its changes over a 50-year period that provides a basis for understanding the changes that occur in a forested community over a fifty year period. Such long term data are rare and valuable for identifying how environmental changes affect processes within hardwood-hemlock forests.

Floral inventories with reference collections include those for vascular plants (Russell, 1958, Dalgeleish, 1982, and Wyman et al. 1988), mosses (Colemen, 1970), gilled Agaricales and macrofungi (Bauhofer, 1985 a & b), and phytoplankton (Makarewicz, 1976 and Siegfried, 1985). Rankert (1983) listed 13 species of lichens growing on nine tree species (Appendix 1).

Located on the Preserve are over 511 species of vascular plants representing 87 families (Harper 1950, Russell 1958). There are some 70 species of trees and understory vegetation on the Preserve (Wyman et al. 1988). Dominant trees on south and east facing slopes are beech (Fagus grandifolia), sugar maple (Acer saccharum), white ash (Fraxinus americana) and red oak (Quercus rubra) with occasional individuals of white pine (Pinus strobus) and hemlock (Tsuga canadensis). North and west facing slopes are generally dominanted by hemlock and beech. In all areas there are also several species of aspen and birch. Along Ten-Mile Creek there are large basswood (Tilia americana) and aspen (Populus spp.). There are seven major single species plantations all planted between 1924 and 1936. Species include red pine (Pinus resinosa), scotch pine (Pinus sylvestris), norway spruce (Picea abies), and white spruce (Picea glauca).

The understory vegetation is dominated by eastern hophornbeam (Ostrya virginiana), American hornbeam (Carpinus caroliniana), various species of Viburnum, and tree seedings and saplings. In the red pine and spruce plantations, understory vegetation is almost completely lacking.

In 1982 about 20 hectares (60 acres) of pine plantation was clear cut but no data were obtained on the vegetation before or since that time. The area has been invaded by saplings of beech, birch and cherry (Prunus sp.) and a few oaks. There is extensive areas of raspberry and blackberry patches (Rubrus spp.). A thorough study of this area is needed.

On the north and west sides of both Lincoln Pond and Lake Myosotis are extensive areas of emergent vegetation. Those on Lincoln Pond were mapped by Likens et al. (1976, Figure 7).

There are open fields located in five areas of the Preserve. One is south of the hamlet of Rensselaerville and west of Ten-Mile Creek and is on the land formerlly known as the Bennett property. Another is on Wood Road across the road from the Ash/Friedman

Table 2. Gross classification of biological community types of the E. N. Huyck Preserve.

Habitat Type	Size (hectares)	Age (years)
Terrestrial Habitats		
Plantations		
larch	1.2	50-60
white spruce	22.4	50-60
red pine	40.0	50-60
scotch pine	0.8	50-60
red & scotch pine mixed	5.6	50-60
white spruce & red pine mixed	15.2	50-60
Early Successional Hardwoods	200.0	25-80
Late Successional Hardwoods	116.0	80-300
Late Successional Old Fields	140.0	15-25
Early Successional Old Fields	120.0	1-15
Aquatic Environments		
Lake Myosotis	40.0	ca. 186
Lincoln Pond	4.0	ca. 186
Beaver Impoundments (nine colonies)	24.0	5-50
Falls	2.0	N.A.
Permanent streams	10.0	N.A.
Intermittent streams	20.0	N.A.
Bog	2.0	N.A.
Swamp lands	30.0	N.A.
Miscelaneous	8.0	N.A.
TOTAL	800.5	N.A.

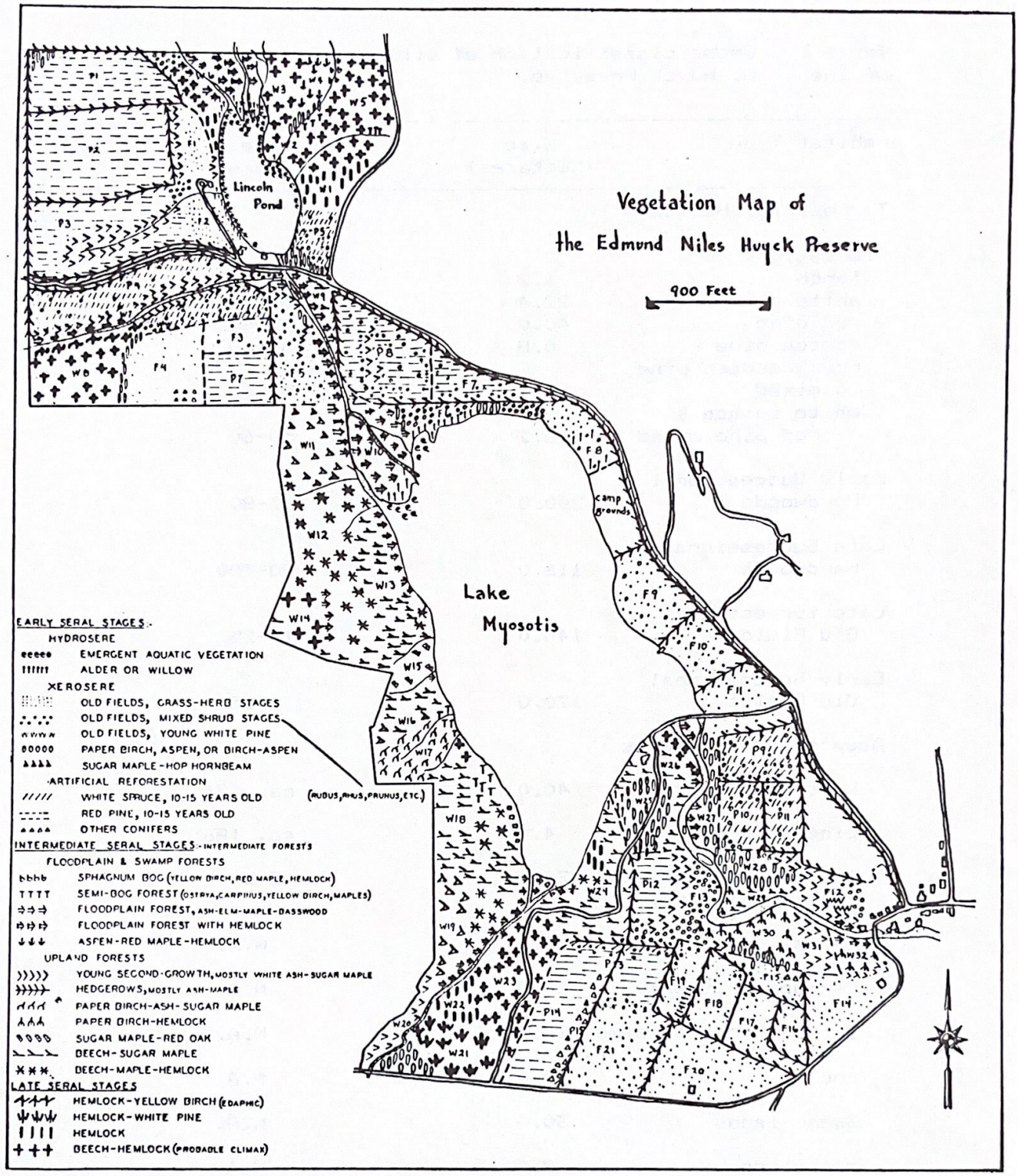


Fig. 4. Map of the Edmund Niles Huyck Preserve showing the principal plant communities

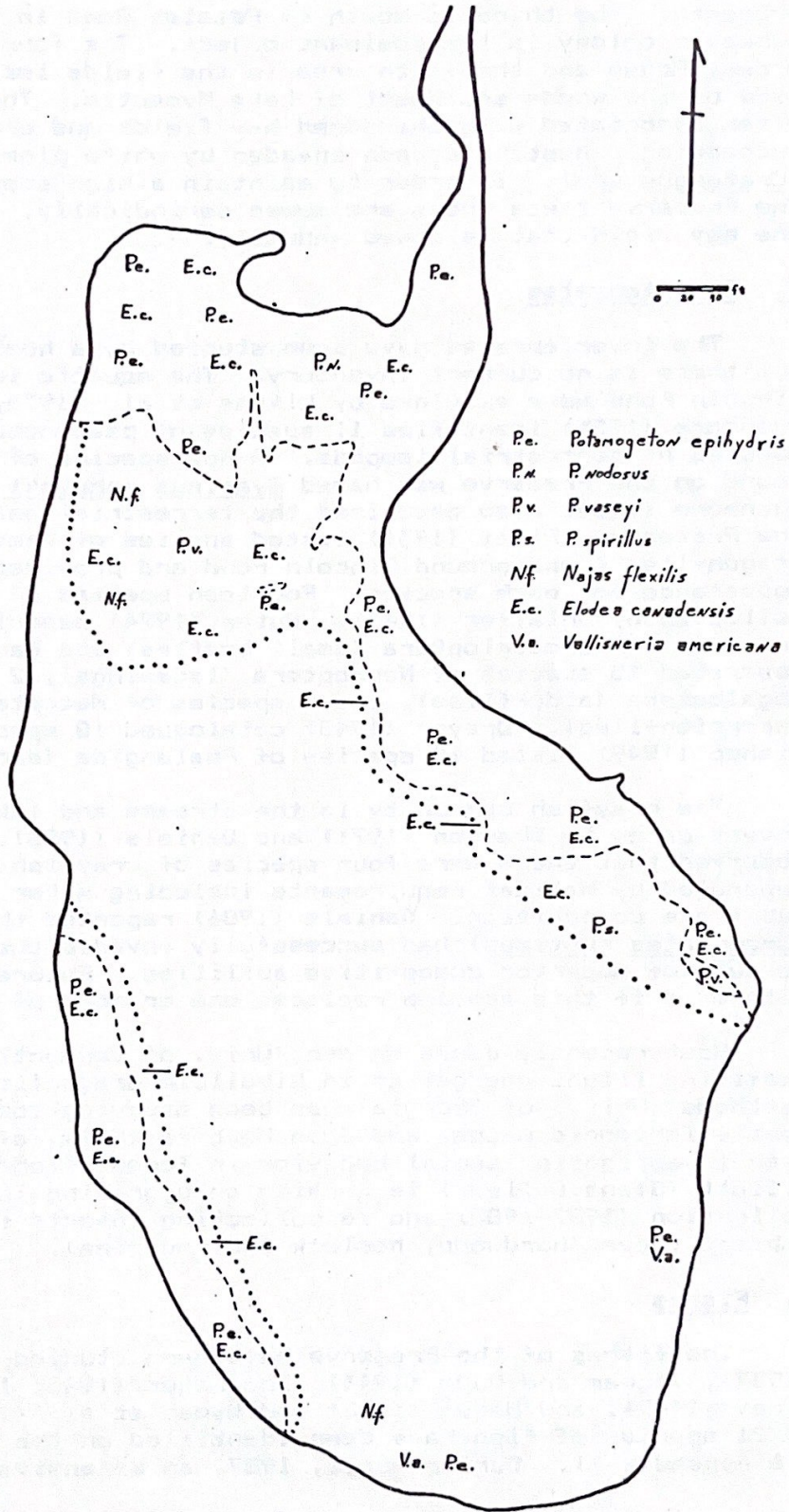


Figure 7. Emergent vegetation of Lincoln Pond (Likens et al. 1976)

Property. The third is south of Peasley Road in a valley in which a beaver colony is the dominant object. The fourth is behind the Ordway House and the fifth area is the fields located on the other side of the woods southwest of Lake Myosotis. The open fields are often associated with abandoned hay fields and orchards and are succeeding. Most have been invaded by white pine and hawthorn (Crataegus spp). In order to maintain a high species diversity on the Preserve these areas are mowed periodically. There is also one hay field that is mowed annually.

2. Invertebrates

The invertebrates have been studied by a host of researchers, but there is no current inventory. The aquatic invertebrates of Lincoln Pond were examined by Likens et al. (1976, Appendix 1). Muchmore (1955) identified 11 species of pseudoscorpions and eight species of terrestrial isopods. A new species of pseudoscorpion found on the Preserve was named Syarinus enhuycki (Muchmore 1968). Muchmore (1959) also described the terrestrial snails and slugs of the Preserve. Piatt (1941) listed species of damselflies and dragonflies found around Lincoln Pond and provided dates of first appearance for each species. Fourteen species of mosquitoes were collected by Shlaifer (1941). Suter (1974) described 15 of the Preserve's Microcoeloptera (small beetles) and Macleod (1961) described 15 species of Neuroptera (lacewings), 2 species of Megaloptera (alderflies), and 8 species of Mecoptera (scorpionflies). Dreyer (1948) catalogued 18 species of ants and Bishop (1949) listed 10 species of Phalangida (daddy-long-legs).

The crayfish community in the streams and lakes has been investigated by Brayton (1971) and Daniels (1986). Brayton observed that there were four species of crayfish which were separated by habitat requirements including water velocity and substrate composition. Daniels (1986) reported that a new species (Orconectes rusticus) had successfully invaded the Preserve because of superior competitive abilities. Future studies will determine if this species replaces one or more of the others.

Most recently James Marden (Univ. of Vermont) has been examining flight energetics in Libulleid dragonflies, Robert Matthews (Univ. of Georgia) has been studying competition between female ichumonid wasps, and Joan Herbers (Univ. of Vermont) has been investigating social behavior in forest floor ants.. Nancy Elliott (Siena College) is working on upgrading the insect collection (1987-1988) and is collecting insects from three habitat types (hardwood, hemlock and red pine).

3. Fishes

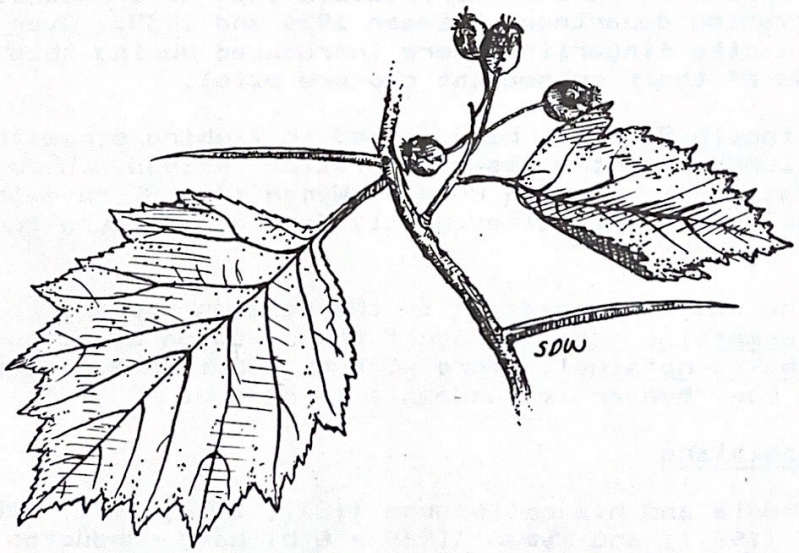
The fishes of the Preserve have been studied by Hamilton (1937), Iagram and Odum (1941), Shoemaker (1945, 1947, 1952), Raney (1942), and Hagen (1963) and Wyman et al. (1987). A maximum of 21 species of fish have been identified on the Preserve (Table 3 & Appendix 1). During April, 1987, an extensive survey of the

Table 3. Summaries of species of vertebrates reported from the E. N. Huyck Preserve from 1937 through 1987*.

Class	1937	1940–1941	1942–1944	1947–1950	1964	1970–1972	1981	1986–1987	Total
MAMMALS	34	10	12	27	NS	15	NS	34	44
BIRDS	90	130	59	132	85	79	65	156	193
REPTILES	8	2	NS	2	NS	2	NS	9	9
AMPHIBIANS	17	11	NS	2	NS	6	NS	15	19
FISH	14	4	13	NS	NS	NS	NS	14	21

* references as in Appendix 1

NS = not studied



fish populations within Lake Myosotis was conducted by Wyman and the fisheries class of the State University of New York at Cobelskill. Although data analyses are incomplete a general picture of the fishes is clear. There is a large and somewhat stunted population of yellow perch (Perca fluvitalis) and white perch (Morone americana). The latter were evidently introduced from the Hudson River. There are also large brown (Ictalurus nebulosus) and yellow bullhead (I. natalis) populations. Predators include the largemouth bass (Micropterus salmoides) and the pickerel (Esox niger). Several years ago a local resident introduced about 15 northern pike (E. lucius) and an occasional individual is captured especially during ice fishing. Black crappie (Pomoxis nigromaculatus), rockbass (Ambloplites rupestris) and pumpkinseed sunfish (Lepomis gibbosus) are also abundant. The forage base fish are the golden shiner (Notemigonus crysoleucas) and the common shiner (Notropis cornutus). Three species of trout have disapeared from Lake Myosotis since 1937.

A comparison of the fish community in Lake Myosotis among the years 1945, 1963, and 1987 is presented in Table 4. Although different techniques were used to sample the community (1945 = hoop and gill nets and seine; 1963 = gill and trap nets; 1987 = trap nets, seine, and electrofishing) some general comparisons can be made. First brown bullhead were less abundant in 1987 than in 1963 and yellow perch were more abundant. The white perch population appears to have declined in abundance recently. Large predators (e.g. bass and pickerel) were caught in approximately the same proportions over all years. Pumpkinseed sunfish appear more abundant in 1987 but this was probably due to the use of electrofishing gear when 60% of the fish were collected. The common sucker (Catostomus commersoni) appears to have become very scarce.

Table 5 lists the fish stocked into Lake Myosotis by the conservation department between 1926 and 1935. Over 700,000 walleye pike fingerlings were introduced during this period but no records of their subsequent capture exist.

Lincoln Pond has been closed to fishing since the establishment of the Research Station in 1938. Underwater observations in Lincoln Pond by Wyman in 1987 revealed a high population of pickerel evidently feeding on young sunfish and yellow perch.

The dominant predator in the streams appears to be the creek chub (Semotilus atromaculatus) that feed on bluntnose minnows (Pimephales notatus). More work on the fishes of the streams and of the many beaver impoundments is needed.

4. Amphibians

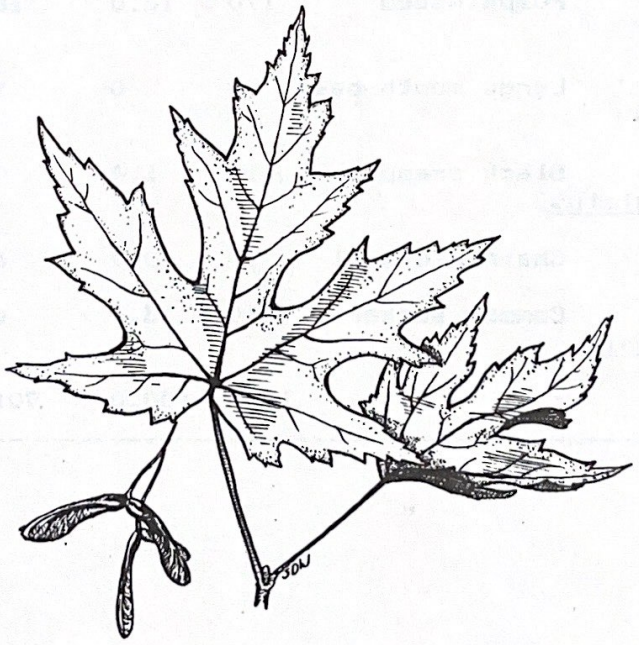
Brodie and his colleaques (1977, 1978, 1979, 1980) and Zotz et al. (1987), and Wyman (1988 a & b) have conducted extensive work with the amphibians of the Preserve. Nineteen species of

Table 4. Comparison of fish caught in Lake Myosotis in 1945 (hoop & gill nets, seine, Shoemaker 1945), 1963 (gill & trap nets, Hagen 1963) and 1987 (trap nets, seine, electrofishing, Wyman et al. 1987).

Species	Common name	1945		1963		1987	
		#	%	#	%	#	%
Ictalurus nebulosus	Brown bullhead	180	16.9	749	83.1	183	39.4
I. natalis	Yellow bullhead	0	0	0	0	6	1.3
Morone chrysops	White perch	10	0.9	61	6.8	3	0.6
Perca fluvitalis	Yellow perch	290	27.2	52	5.8	180	38.8
Notemigonus crysolecas	Golden shiner	250	23.5	14	1.6	11	2.4
Lepomis gibbosis	Pumpkinseed	170	16.0	18	2.0	61	13.1
Micropterus salmoides	Large mouth bass	0	0	1	0.1	1	0.2
Pomoxis nigromaculatus	Black crappie	15	1.4	0	0	16	3.4
Esox niger	Chain pickerel	10	0.9	6	0.7	3	0.6
Catostomus commersonnii	Common sucker	140	13.1	several		0	0
Total		1065	100.0	901	100.0	464	100.0

Table 5. Fish stocked into Lake Myosotis between 1926 and 1935 by New York Conservation Department

	YEAR (Numers stocked)							
Species	1926	1929	1930	1931	1932	1933	1934	1935
Walleye Pike	200,000	100,000	100,000	200,000	100,000	0	0	0
Smallmouth bass	1,000	1,000	1,000	1,000	1,000	2,000	2,000	4,000
Crappie (mostly black)	0	100	0	0	0	0	0	0
Yellow perch	0	0	0	2,000	2,000	0	0	0
Brown bullhead	0	0	0	0	32	300	450	450
White perch	0	0	0	0	0	170	0	0



amphibians have been reported from the Preserve over the years. The entire Preserve was surveyed for forest amphibians during the summer of 1987 and 14 species were collected. Seven species of amphibians occurred in the forest litter and occurred in densities of 0.1 to 0.3 per meter square. This density is lower than that for other areas of southcentral New York (Wyman 1988). The dominant species throughout the forests of the Preserve is the red-backed salamander (Plethodon cinereus). Near streams and seepage areas the two-lined (Eurycea bislineata) and dusky (Desmognatus fuscus) salamanders are dominant. During moist or rainy periods large number of the red-eft stage of the red-spotted newt (Notopthalmus viridescens) are found on the forest floor.

Zotz et al. (1987) compared the density of amphibians among the four habitats types: the red pine plantation, white spruce plantation, hemlock forest, and the hardwoods. The spruce plantations contained no amphibians. The red pine and hemlock stands contained low densities (0.1/m) while the beech woods northeast of the Ordway House contained the highest densities (0.3/m). The low density of salamanders in the hemlock and red pine appear to be do to the absence of hiding sites and food for the salamanders. It is not currently known why there are no amphibians in the spruce forests or why there is an overall low density of forest floor amphibians on the Preserve.

Hamilton (1937) reported 17 species of amphibians. While in 1986-1987 Wyman found only 14 species. No red salamanders (Pseudotriton ruber), mountain dusky salamanders (Desmognathus ochrophaeus), Jefferson's salamander (Ambystoma jeffersonianum), or slimy salamanders (Plethodon glutinosus) have been reported in 40 years. Efforts should be made to document the presence or absence of these species. Ambystomid salamander populations have been having difficulty maintaining themselves in New York in recent years.

5. Reptiles

The reptiles have been surveyed by Hamilton (1937) and L. Bayless (1970, 1971, 1972, 1975) and Steadman (1987). A total nine species of reptiles has been reported from the Preserve. It is likely that additional species will be found with increased efforts to located them. Reptiles are often quite difficult to locate unless specific efforts are made. Wood turtles (Clemmys insculpta) have become rare since the 1940's. This species is a species of special concern in New York State. Large snapping turtles (Chelydra serpentina) have been observed in Lincoln Pond since 1937. In 1941 Piatt reported collecting a 35-pound snapping turtle which he and the other biologist ate the same evening.

6. Birds

The birds of the Preserve have been extensively studied beginning with Odum's work on chickadees in the 1940's. The entire bird community was described by Hamilton (1937), Odum

(1940), Kendeigh (1946), Harper (1950), Dalgleish (1964), B. Bayless (1970), Bouin (1970), Bingman (1982), and Steadman (1987 & 1988). A total of 193 species of birds have been reported from the Preserve. Most recently Steadman (1987) reported the occurrence of 156 species of birds during 1986 and 1987.

At least seven species of birds have been reported only in recent years. These are the double-crested cormorant (Phalacrocorax auritus), wild turkey (Meleagris gallopavo), red-headed woodpecker (Melanerpes erythrocephalus), northern goshawk (Accipter gentilis) gyrfalcon (Falco rusticolus), tufted titmouse (Parus bicolor), and evening grosbeak (Hesperiphona vespertina). The presence of these new species on the Preserve may be accounted for by either (or both) increased observations of bird life year-round by Steadman or the increased woodland habitat which some of the species prefer.

Birds that have not been seen since the 1940s include yellow billed cuckoo (Coccyzus americanus), ring neck pheasant (Phasianus colchius), bobwhite (Colius virginianus) and the purple martin (Stelgidopterx ruficolis). The cuckoo is a western form that may have been present here because of large open areas present then. The pheasant and bobwhite both require fields and large open areas. The purple martin has become rare throughout the eastern United States recently.

Throughout the summer of 1987, an immature bald eagle (Haliaeetus leucocephalus) was observed periodically in and around Lake Myosotis and the upper Ten-Mile Creek watershed. Andrea Worthinton (Siena College) is currently working on the ecology of fruit eating birds of the Preserve.

Thirty nest boxes were installed during the spring of 1987 to aid cavity nesting birds. One-half of these boxes were occupied during the summer by house wrens (Troglodytes aedon) and tree swallows (Iridoprocne bicolor) and these birds fledged a large number of young.

7. Mammals

Forty-four species of mammals have been reported from the Preserve since 1937 (Table 3 & Appendix 1). Hamilton and Cook (1940) and Thorington (1962) catalogued the mammals and made reference skin and skull collections. Hamilton (1937) reported the presence of 34 species and Steadman (1987 & 1988) reported signs or sitings of 34 species. Recently several species have re-established themselves on the Preserve after formerly being extirpated earlier in this century or during the last century. These include the river otter (Lutra canadensis), fisher (Martes pennanti) and black bear (Ursus americanus). Other large predators include the coyote (Canis latrans) and the bobcat (Lynx rufus). There also are present feral dogs and cats. The few mammals that have not been seen recently include the Norway rat (Rattus norvegicus) and house mouse (Mus musculus). Their absence

can be attributed to the return of forested areas and the absence of human habitations.

8. Collections

A comprehensive reference collection of specimens of each fossil, vascular plant, amphibian, reptile, bird, mammal and invertebrates is maintained on the Preserve in the Eldridge Research Center. Larger series are deposited in the New York State Museum and the United States National Museum (e.g., Thorington 1962). Vegetation collections have been deposited in herbaria of the Southern University of Iowa, University of Minnesota, and University of Tennessee (Russell 1958) Recently, David Steadman (Vertebrate Biologist with the N.Y. State Museum) has been surveying the vertebrates of the Preserve with special attention to the birds and mammals. Richard L. Wyman (Resident Biologist) has been updating the fish, amphibian and reptile collections.

The well-defined 64 hectare (160 acre) lots of the region provide a crude reference base for locating specimens within tracts of known agricultural history. In addition some of the wooded region of the Preserve has been subdivided into 50 meter and 100 meter square grids by researchers interested in quantification of ecological relationships (e.g., Runkle 1978, 1985). The Preserve has plans to establish a 100-square meter (hectare) reference grid in the near future.

Lists of the species of mosses, fungi, lichens, ferns, herbs, trees, phytoplankton, aquatic invertebrates, snails, isopods, mosquitoes, spiders, Microcoeloptera, lacewings, alderflies, scorpionsflies, ants, crayfish, pseudoscorpions, dragonflies, damselflies, fish, amphibians, reptiles, birds, and mammals observed or collected are included in Appendix 1. A list of insects is in preparation at the time of this writing.

Environs, Support Facilities and Libraries

Within 30 miles of the Preserve, there are twelve colleges and universities with a total enrollment of 50,000 students. There are about 150 professional biologists within the Capital District of New York. The Preserve is readily accessible to these biologists and now attracts researchers from throughout the United States and Canada.

The Rensselaerville Library was founded in 1796 as a Federal Reading Room. As a member of the Upper Hudson-Mohawk Association, this library has access to the holdings of all major libraries of the Northeast. In addition, photocopy reproductions of articles requested are frequently available three days from the date of the request.

The Preserve has its own library of 250 books and over 2000 reprints dealing with ecology, taxonomy and biology. In addition

the Preserve receives the following journals: Animal Behaviour, Ecology and Ecological Monographs, Animal Ecology, Journal of Ecology, Journal of Wildlife Management, Science, BioScience, American Midland Naturalist, American Naturalist, Evolution, Auk, the Condor, Copeia, Herpetologica, the Journal of Herpetology, Fisheries Research, Bulletin of the American Fisheries Society, and the Wildlife Society Bulletin.

Research History

The Huyck Preserve has supported biological research since the establishment of the Biological Research Station in 1938. Since its founding about 250 research projects have been conducted by more than of 155 scientists, and some of the projects have continued for years (e.g., Beatty, Tobiessen, Runkle, Wilcox, Rozen, and Herbers, just to mention a few). This research has resulted in the publication of 170 peer-reviewed scientific papers (Appendix 2), and an additional file of 91 unpublished final reports (Appendix 3).

The Preserve has benefitted from the advice of members of a Scientific Advisory Committee, who have, at times, recognized the research potential of Research Fellows before they became nationally recognized research scientists (e.g. E. P. Odum, D. Griffin, E. Raney, S. C. Kendeigh, G. C. Eickwort, H. Evans, E. Brodie, R. S. Wilcox, and many others).

The Preserve and its Scientific Advisory Committee support both established and emergent investigators. Research space and financial support are made available on a national, competitive basis. Proposals are received from scientists throughout the country for financial support and these are reviewed by the Preserve's Scientific Advisory Committee with due regard for equal opportunity provisions. Researchers who do not receive a monetary award may submit a proposal for a waiver of fees associated with housing and laboratory use. As an independent, private biological station, the Preserve does not have proprietary relationships with any institution.

A summary of the research conducted prior to 1983 will be published as a separate occasional paper and will be based on an annotated bibliography prepared by Townsend (1984). In addition, more recent research is described in greater detail below. From 1979 to 1987, more than 50 researchers worked at the Station (Appendix 4). Thirty-five of these received at least one research grant from the Preserve during that time period. The mean number of researchers using the Station per year is 10.

It is noteworthy that several prominent biologists began their career at the E.N. Huyck Preserve. For instance, Donald Griffin (1941, 1944) began his work on echolocation of bats in the barn that is now the Eldridge Research Center. Eugene Odum (1941, 1942) conducted some of his first studies of birds and of plant succession on the Preserve. W.J. Hamilton conducted the first

survey of the ecological communities of the Preserve in 1937. S. C. Kendeigh worked on breeding birds of the Preserve from 1942 to 1945. Sherman Bishop conducted studies of the invertebrates and vertebrates of the Preserve throughout the 40's. More recently well known researchers have included Mary Jane Eberhardt, G. C Eickwort, Howard Evans, Robert Matthews, and R. Stimson Wilcox.

Research within the Last Ten Years

Most of the research over the last ten years can be divided into three areas dealing with: 1) the forest floor biota and the decomposer community, 2) the mature forest and its trees, and 3) behavioral ecology and evolution. These research areas are briefly described below.

1. Forest floor biota and the decomposer community

This project is focused on the decomposer communities and forest floor biota of hemlock, hardwood and pine plantation habitats found on the Preserve. Much of the work attempts to determine how these habitats differ and what environmental conditions are responsible for the differences (Table 6).

Forest floor vegetation

Susan Beatty (Univ. California at Los Angeles) began her work on the factors influencing the spatial patterns of the forest floor vegetation in 1979 while working on her doctorate at Cornell University. Her work has grown to include the effects of litter accumulation and herbivory on the forest floor vegetation (Beatty 1984, 1987 and Beatty and Sholes 1987). In addition Beatty and Stone (1986) have conducted extensive analyses of tree fall pit and mound microsites. Beatty's work is currently being supported by the National Science Foundation (NSF).

Scott Collins (Univ. of Oklahoma) has begun a study of the forest floor vegetation in the Preserve's Hemlock forests and is attempting to determine those characteristics of the forest floor that affect hemlock seeding survival. He is analyzing the effects of soil and litter thickness, soil pH, and overstory vegetation.

Peter Tobiessen (Union College) began research on the Preserve in 1971. His initial work was on drought resistance and stomata function in pioneer species (Tobiessen 1974, Tobiessen and Buchsbaum 1976). More recently his work has focused on the significance of endomycorrhizal tree associations in the survival and establishment of hardwood seedlings in pine plantations (Tobiessen and Werner 1980). He currently has a multi-year experiment underway using exclusion fence to control large herbivore browsing and is examining the factors which prevent seedings from becoming established under red pines.

Table 6. Listing of scientists and their projects on the forest floor biota and decomposer food web of forests of the Edmund Niles Huyck Preserve.

Taxonomic Level/Project	Researcher	Duration (yrs)	Home Institution
Microbes	W. Elliott	2	Hartwick College
Litter accumulation	W. Elliott	1	Hartwick College
Litter decomposition	W. Elliott	1	Hartwick College
Fungal taxonomy	C. Bauhofer	3	Shalmont School
Fungal Taxonomy	J. Haines	3	N.Y.S. Museum
Fungal Ecology	G. Bills	P	Univ. of Wyoming
Invertebrates	O. Sholes	3	Assumption College
Invertebrates	N. Elliott	2	Siena College
Invertebrates (ants)	J. Herbers	4	Univ. of Vermont
Invertebrates (wasps)	R. Matthews	20	Univ. of Georgia
Invertebrates (flies)	D. Houle	2	SUNY-Stony Brook
Vertebrates			
Herpetofauna	R. Wyman	2	Huyck Preserve
Amphibian physiology	M. Frisbie	P	Univ. W. Kentucky
Mammals	D. Steadman	3	N.Y.S. Museum
Vegetation			
Forest floor	S. Beatty	10	Univ. of California at Los Angeles
Seedling Succession	S. Collins	2	Univ. of Oklahoma
Trees	J. Runkle	10	Wright State Univ.
Trees	R. Wyman	2	Huyck Preserve

P = proposed study for 1988

Decomposers

The bacteria and fungi are at the base of the decomposer food web. William Elliott (Hartwick College) is characterizing the bacterial populations of the hardwood and conifer plantations. He is also determining rates of litter accumulation and loss from the standing crop of humus. He gathers samples monthly from litter collectors and has mesh bags with litter placed in three forest types to determine rates of decomposition.

Gerald Bills (Univ. of Wyoming) will be conducting research on the Preserve during 1988. His previous research compared ectomycorrhizal-Basidomycete communities in red spruce and hardwood forests in West Virginia (Bills et al. 1986). Fungi are probably the most important of the decomposers.

Corlin Bauhofer (Shalamont School) and John Haines (NYS Museum) have been characterizing the fungal populations of the Preserve for 5 years (Appendix 1) They have generated a species list by habitat type for much of the original 200 hectares of the Preserve's lands.

Invertebrates of the Decomposer Community

Nancy Elliott (Siena College) is curating the Preserve's insect collection. She is also characterizing the invertebrates of the hardwood and conifer plantations. This work includes the quantification of the density of key invertebrates which feed on the decomposer fungi and bacteria. She is attempting to quantify invertebrate populations through the analysis of quadrats of known area, soil cores, and sweep-netting in each of the three kinds of forest habitats.

With NSF support, Joan Herbers (Univ. of Vermont) began her research on the Preserve in 1980 on the evolution of social behavior in ants. Her work focuses on the maintenance of multiple queening in the genus Leptothorax. She has tested various hypotheses which can account for the existence of more then one queen laying eggs in a nest (Herbers 1983, 1984, 1985, 1986a,b,c). She has also documented the density of these ants on the forest floor and identified factors which affect ant density. Ants are important members of the decomposer community. A graduate student of Herbers will begin her dissertation research on the Preserve during 1988.

David Houle (SUNY -Stony Brook) and his student, E. B. Hey, have examined habitat choice in the Drosophilia affinis subgroup (Houle and Hey 1986). The larvae of Drosophilia are members of the invertebrate community that feed on decaying material and are prey of upper level consumers of that community.

Robert Matthews (Univ. of Georgia) has returned to the Preserve periodically over the last 20 years (Matthews et al. 1979). In 1987, he worked on the behavioral ecology of wasp

Megarhyssa which parasitizes wood boring beetle larvae. Beetle larvae play a role in decomposition by breaking down dead plant material and seeding onto that material bacteria as it passes through their guts.

Vertebrates of the decomposer community

Richard Wyman (Huyck Preserve) is conducting studies of the amphibians, reptiles, and small mammals using drift fences and pit-fall traps in hardwood, hemlock and pine plantation habitats. His work is aimed at quantifying the numbers of these upper level consumers of the decompsoer food web and at determining facters which limit their abundance. He has also worked with a number of students on projects dealing with the effects of acid soils on amphibian populations (Wyman and Hawksley-Lescault 1987, Zotz et al. 1987) and on the density of common amphibians in forested habitats throughout south-central New York (Wyman 1988b).

During 1988 Malcolm Frisbie (Univ. Western Kentucky) will be working on ion balance in the red-backed salamander (Plethodon cinereus) living on acid soils because available data suggest that this species may be limited by acid soils (Wyman and Hawksley-Lescault 1987). Results from other studies indicate that body sodium loss is responsible for mortality of fish and aquatic amphibians exposed to acidic conditions.

Edmund Brodie (now at Univ. Texas at Arlington, formerly at Adelphi Univ.) began working at the Station in 1976 and he and his students continued extensive studies of antipredator mechanisms of the Preserve's amphibians until his move to Texas in 1982 (Brodie 1977a & b, 1978, Brodie and Brodie 1980). Amphibians are the most abundant upper level consumers of the invertebrates of the forest floor. One of Brodie's students, R. Formanowicz, conducted his master's work on the Preserve and continues to conduct studies of predatory behavior and foraging dynamics of amphibians (Formanowicz 1982, 1986, Formamowicz and Brodie 1981, 1982).

David Steadman (NYS Museum) has been analyzing small mammal populations for three years. He is working with R. Wyman to describe the typical species found in hemlock, hardwood, and pine plantation habitats (Steadman 1987, 1988).

2. The mature forests and its trees

James Runkle (Wright State Univ.) has been studying forest regeneration in a stand of hemlock (Tsuga canadensis) on the Preserve since 1977 (Runkle 1978). His research has been concerned with how hemlock regenerates itself within old-growth forests and with the effects of gaps on forest regeneration (Runkle 1981, 1982). He returned in 1986 to update his analysis of the same hemlock stand -one which apparently has never been cut.

The analysis of species composition, associations and

succession in eleven natural forested stands and eight conifer plantations (planted between 1928 and 1932) have been the subject of multiple studies. These stands were first analyzed by Odum in 1939 and 1940 (Odum 1943) using a strip transect technique, by Russell in 1953 and 1964 using the random point-quarter technique, and by a team of students from Earth Watch under the direction of R. Dalgleish. This 40 year data set was analyzed by Michael Mackey in 1976 (1977). Wyman et al. (1988) surveyed these same stands in 1987 and included an analysis of understory vegetation as well. This yielded a 50-year picture of forest succession with samples about every ten years (1939, 1953, 1964, 1974, and 1987). These data are still undergoing analyses. The Preserve thus has a complete picture of the overstory vegetation and its changes over the last one-half century. In addition some of these stands are over 200 years old while others are less than 50, thus providing the opportunity for an analysis of forest change over a 200 year period.

Ralph Ibe (Queens College) is helping to provide a historic view of the Preserve's forests by examining the pollen held in the sediments of the Preserve's 18,000 year old bog. This work should give us a picture of the change in the forest for at least the last several thousand years.

3. Behavioral ecology

The Preserve is well known for its contributions to the evolution of behavior of invertebrates and vertebrates. Recently studies have focused on territoriality, reproductive behavior, communication, and competition.

R. Stimson Wilcox (State Univ. of N.Y. at Binghamton) first came to the Preserve in 1976 and began work on territoriality in the water strider (*Gerris remigis*). Wilcox has returned almost every summer since then and continues to broaden our understanding of the proximate and ultimate determinants of territoriality (Wilcox 1979 a & b, 1982, 1986, Wilcox and Ruekdeschel 1982).

James Marden (Univ. of Vermont) has been studying the significance of flight muscle mass in Libellulidae dragonflies as part of his dissertation work since 1985. His work has shown that territorial males of *Plathemis lydia* have one of the highest flight muscle to body mass ratios of any species studied. This high flight muscle mass is important to reproductive success of males because it allows them to fend off other males attempting to copulate with receptive females. Marden has also examined the effects of load lifting constraints on the mating system of a dance fly (*Hilaria* sp.).

C. S. Henry (1982, 1983, 1985) (Univ. of Connecticut) and his student (C. Busher) have been examining reproductive behavior in green lacewings (e.g. *Chrysoperla carnea*) including acoustic communication and its role in species divergence. Henry has found that the proliferation of cryptic species of green lacewings

occurred through song divergence.

Robert Daniels (NYS Museum) has been investigating the effects of an invading species of crayfish on resident species populations (Daniels 1986). This work included the use of an artificial stream constructed on the Preserve.

Fred Harrison (1986)(Western Carolina Univ) has been studying the behavior of cells of the dermal layer of freshwater sponges on the Preserve since 1983. He has identified previously unknown functions of these cells.

In addition the research programs of J. Herbers, N. Elliott (Elliott et al. 1981, 1986), R. Matthews (Matthews et al. 1979), A. Worthington, R. Wyman (Wyman and Hotaling 1988) and their students frequently include inquiries into behavioral ecology.

Data Base Development

The Preserve maintains files of the final reports and published papers submitted by scientists who have received financial support from the Preserve and those that have worked on the Preserve (Appendix 2). The Preserve is developing a geographic information system based on a computerized bibliography of the reports and papers published by Preserve researchers (Townsend 1984). The development of the Preserve's data base follows the recommendations provided by the report Data Management at Biological Field Stations prepared for the NSF by the W. K. Kellogg Biological Station. The Preserve's annotated bibliography and keyword retrieval system will allow researchers to search the Preserve's data base using the keywords that best describe his/her project. Key words include authors, species names, locations on the Preserve, and topic categories. The fauna and flora collections have been cataloged and computerized. The catalogues and species lists are available to visiting researchers.

Data on the forests of the original 200 hectares have been gathered about every 10 years since 1938. This results in a 50 year data base on the Preserve's forests and this data base is available to visiting researchers. As mentioned above, vertebrate species inventories have also been gathered and are updated periodically.

Each researcher submits a map of the Preserve with the study sites identified so that species can be matched with particular geographic locations and habitats. These data will be entered into the Preserve's geographic information system. In addition the Preserve has weather data that have been gathered intermittently over the past 50 years. Weather data are now gathered continuously. The Preserve has one weather station which records wind speed and direction, temperature, relative humidity and rainfall. These data are on strip charts.

Research Reports

The Preserve publishes seasonal newsletters, an annual report and with the publication of this report has begun a series of occasional papers. These are distributed to other biological field stations and are available upon request from the Preserve.

Physical Plant

The strengths of the Preserve are its size and the length of its research record. Having grown to 800 hectares the Preserve is large enough so that most local species of plants and animals can maintain viable populations within its boundries. It represents one of only two research stations in the Catskill Mountain region, and the only private preserve in the Northeast United States with a Biological Research Station that funds research. The Preserve is committed to providing and enhancing its research facilities. Since 1982 the Preserve has been improving the physical plant because it wishes to accomodate more scientists working throughout the year.

There are eight major buildings with over 10,000 sq ft of space located on the Preserve (Table 7). Potential housing capacity for 19 researchers exists during the summer months and eight during the winter.

The Mill House is located on Main Street in the Hamlet of Rensselaerville and is the office of the Preserve. Office equipment includes an IBM personal computer and Mita photo-copying machine. Preserve records, maps, and data are stored in the Mill House. There is also a two bedroom apartment in the Mill House that is rented as a source of income for the Preserve.

Lincoln Pond Cottage (built ca. 1790) is used to house visiting researchers and is located on the south shore of Lincoln Pond. It is about 30 m from the Eldridge Research Center. Lincoln Pond Cottage is a two-story, four bedroom cottage and has a complete kitchen and bathroom facilities. This building is scheduled to be refurbished and winterized during 1988.

Bull Frog Camp located on the west shore of Lincoln Pond is composed of three buildings that are used to house researchers during warmer months. The main building sleeps seven and has a complete kitchen and three bathrooms. There are also two small cabins that sleep two each and have small bathrooms.

Davis Cottage was erected by the Preserve in 1948 as a summer residence. The building is one story and currently is composed of two rooms, one designed to be a kitchen and the other as a combination bedroom and living room. It is located on the east shore of Lake Myosotis.

Ordway House is located on Pond Hill Road northeast of Lake

Table 7. Physical Plant of the Edmund Niles Huyck Preserve and Biological Research Station.

Building Name/ Function	Square Feet	Researcher Capacity/ Type*
Mill House	1,450	
Office	450	
Apartment	600	3 housing (rented)
Research Lab(wet)	300	1 research
Library	100	
Ordway House	1,440	
Apartment 1	860	Resident Manager's Home
Apartment 2	580	2 housing
Ordway Barn Shop&Storage	1,875	N.A.
Lincoln Pond**	1,034	6 housing or 3 couples
Bull Frog**	1,475	
Main	875	4 housing (1 family)
Cabin 1	300	2 housing (1 couple)
Cabin 2	300	2 housing (1 couple)
Davis***	550	3 housing
Eldridge Research Center	1,900	
Dry Lab	300	6 research
Wet Lab	250	4 research
Storage	150	
Lecture Hall	1,000	50 audience
Library	100	
Reference Collection Area	100	
Five other storage sheds	675	
Total	10,399	

* does not include research space within housing space.
** summer only
*** not currently habitable

Myosotis. The house is divided into two apartments. One has two bedrooms and is the home of the manager and resident biologist. The second has one bedroom and is used for visiting researchers. The house is completely winterized.

There are three laboratory facilities located on the Preserve. A wet lab and a dry lab are in the Eldridge Research Center. Both have new modular cabinets and chemical resistant bench top surfaces. The dry lab is equipped with microscopes, analytical balances, a constant temperature chamber, centrifuge, assorted glassware, and aquatic sampling gear. The third laboratory is in the Mill House and is used by the Resident Biologist for his research on fish behavior and amphibian behavioral-ecology. The laboratory holds 30 aquaria from 10 to 50 gallon capacity and has controlled lighting, air supply and heat. The Eldridge Research Laboratory also includes an auditorium which holds 50, a small library, and a specimen reference collection area.

The Preserve's shop is located in a large three-story barn behind the Ordway House. It contains modern tools and supplies for carpentry, plumbing, building maintenance and landscaping. The Preserve owns a farm tractor and a one-half ton pick-up truck.

Administration and Scientific Advisory Committee

The Resident Manager and Biologist is the chief administrative officer for the Preserve. The Resident Manager is responsible to a 15-member Board of Directors made up of scientists and non-scientists who have demonstrated an interest in the objectives of the Preserve. The Board of Directors holds five to six meetings per year and is required by the by-laws of the corporation to hold a general membership meeting in August of each year.

The Preserve is supported in part (about 70% of operating income) by an annual grant from the E. N. Huyck Foundation. The remaining operating funds are raised from membership dues, rents, the sale of maple syrup, t-shirts and sweat shirts, and donations.

Other personnel include seasonal research assistants, a part-time, year-round secretary and office assistant and up to 6 to 8 summer employees. A groundsman/maintenance person is hired for the spring through fall period.

Since its founding, the Research Station has had a Scientific Advisory Committee (Appendix 5) that oversees the Biological Research Station and reviews grant proposals. The biological research potential of the Preserve was first identified in 1935 by Dr. Robert E. Coker and Mr. William Vogt. Acting upon their advice, Dr. William J. Hamilton, Jr. was hired in 1937 to conduct a biological survey of the Preserve. Dr. Hamilton recommended the establishment of a biological research station managed by a committee of scientists. Dr. Hamilton was elected the first

Chairman of the Scientific Advisory Committee. He served from 1937 to 1960. Dr. Hamilton was succeeded by Dr. Babette B. Colemen, who served until 1974, and she was succeeded by Dr. Thomas Eisner. The Committee has until recently contained five scientists, however one recently passed away and has not yet been replaced. The current committee includes:

Dr. Peter Tobiessen, Union College (Chairperson)

Dr. Edward Horn, N.Y. State Dept. Environ. Conserv.

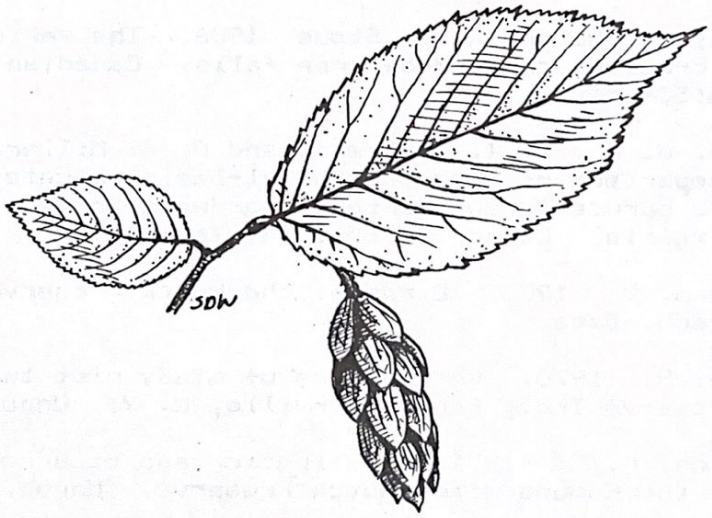
Dr. David Steadman, N.Y. State Museum

Dr. Andrea Worthington, Siena College

The E. N. Huyck Preserve is a private, non-profit membership corporation and fulfills all accounting provisions of the Internal Revenue Service Code. An annual audit is performed and filed with the IRS, NYS Department of Social Services, Charitable Organizations Section, and the Office of the NYS Attorney General.

List of Appendices

Appendix 1. Lists of species of the flora and fauna of the E. N. Huyck Preserve, water quality data, and morphometric characteristics of Lincoln Pond and Lake Myosotis.



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APPENDIX 1. Lists of species collected on the Edmund Niles Huyck Preserve and Biological Research Station between 1937 and 1987.

Table 1. Mammals collected on the Edmund Niles Huyck Preserve.

MAMMALS

Order/Species	Common Name	Year 19-- '37	'40	'42	'47-50	'70	'86
Marsupialia							
Deldelphis marsupialis	Opossum	+	+				+
Insectivora							
Sorex cinereus	Masked Shrew	+		+	+		+
Blarina brevicanda	Short-tailed Shrew	+	+	+	+	+	+
Sorex fumeus	Smokey Shrew	+	+	+	+		
Scalopus aquaticus	Eastern Mole						+
Condylura cristata	Star-nosed Mole	+			+	+	+
Parascalops breweri	Hairy-tailed Mole	+		+	+		+
Chiroptera							
Eptesicus fuscus	Big Brown Bat		+		+		+
Myotis lucifugus	Little Brown Bat	+	+		+		+
Myotis keeni	Keen Myotis	+					
Lasiurus borealis	Red Bat	+					
Lagomorpha							
Sylvilagus floridanus	Eastern Cottontail	+				+	+
Lepus americanus	Snowshoe Hare						+
Rodentia							
Sciurus carolinensis	Gray Squirrel	+		+		+	+
Tamiasciurus hudsonicus	Red Squirrel	+	+	+	+	+	+
Tamias striatus	Eastern Chipmunk	+	+	+	+	+	+
Glaucomys sabrinus	Northern Flying Squirrel	+			+		+
Marmota monax	Woodchuck	+		+	+	+	+
Castor canadensis	Beaver	+	+	+	+		+
Clethrionomys gapperi	Boreal Redbacked Vole	+		+	+	+	+
Microtus pennsylvanicus	Meadow Vole	+		+	+		+
Ondatra zibethica	Muskrat	+			+		+
Zapus hudsonius	Meadow Jumping Mouse	+		+	+		
Napaeozapus insignus	Woodland Jumping Mouse	+	+		+	+	
Peromyscus maniculatus	Deer Mouse	+		+	+	+	+
Peromyscus leucopus	White-footed Mouse	+	+		+		+
Mus Musulus	House Mouse	+					

Rattus norvegicus	Norway Rat	+			+		
Erethizon dorsatum	Porcupine	+				+	+
Carnivora							
Canis latrans	Coyote						+
Urocyon cinereoargenteus	Gray Fox	+			+		+
Vulpes fulva	Red Fox	+			+	+	+
Procyon lotor	Raccoon	+			+	+	+
Martes pennanti	Fisher					+	+
Mephitis mephitis	Striped Skunk	+			+		+
Mustela vison	Mink	+			+		+
Mustela erminea	Short-tailed Weasel	+			+		+
Mustela frenata	Long-tailed Weasel				+		
Lutra canadensis	River Otter						+
Lynx rufus	Bobcat						+
Ursus americanus	Black Bear	+					?
Artiodactyla							
Odocoileus virginianus	White-tailed Deer	+	+		+	+	+
		34	10	12	27	15	34

1937 Hamilton
1940 Odum
1942 Kendiegh
1950 Harper (Skins in collection)
1970 Blouin, R. + Binden, J. (2 reports)
1986 Steadman, D.W.

Table 2. Birds collected or observed on the Edmund Niles Huyck Preserve between 1937 and 1987.

Order/Species	Common Name	Year 19-- '37	'40	'42-44	'47-50	'64	'70	'81	'86
Gaviiformes									
Gavia immer	Common Loon	.	.	.	+	.	.	.	+
Podicipediformes									
Podilymbus podiceps	Pied-billed Grebe	+	+	.	+	.	.	.	+
Podiceps auritus	Horned Grebe	.	.	.	+	.	.	.	.
Ciconiiformes									
Nycticorax nycticorax	Black-crowned Night Heron	+	+	.	+	.	+	.	.
Botaurus lentiginosus	American Bittern	+	+	.	.	.	.	.	+
Ardea herodias	Great Blue Heron	+	+	.	+	+	+	.	+
Casmerodius alba	Great Egret	+	+	.	+	.	.	.	+
Butorides striatus	Green Heron	.	.	.	+	+	+	.	+
Anseriformes									
Aythya affinis	Lesser Scaup	.	+	.	+	.	.	.	.
Aythya marila	Greater Scaup	.	.	.	+	.	.	.	.
Aythya collaris	Ring-necked Duck	.	.	.	+	+	.	.	+
Anas crecca	Green-winged Teal	.	.	.	+	.	.	.	.
Anas platyrhynchos	Mallard	+	+	.	+	+	+	+	+
Anas rubripes	American Black Duck	+	+	.	+	+	.	+	+
Anas acuta	Common Pintail							+	+
Aix sponsa	Wood Duck	+	+	.	+	+	+	.	+
Branta canadensis	Canada Goose	+	+	.	+	.	+	.	+
Anas discors	Blue-winged Teal	.	.	.	.	.	.	.	+
Clangula hyemalis	Old Squaw Duck	.	+	.	.	.	.	.	+
Melanitta deglandi	White-winged Scoter	.	.	.	.	.	.	.	+
Bucephala albeola	Bufflehead	.	+	.	+	.	.	.	+
Lophodytes cucullatus	Hooded Merganser	.	.	.	+	.	.	.	+
Mergus merganser	Common Merganser	.	+	.	+	.	.	.	+
Mergus serrator	Red-breasted Merganser	.	.	.	+	.	.	.	+
Melanitta nigra	Black Scoter	.	.	.	+	.	.	.	.
Oxyura jamaicensis	Ruddy Duck	.	.	.	+	.	.	.	.
Bucephala clangula	Common Goldeneye	.	.	.	.	.	.	.	+

Order/Species	Common Name	'37	'40	'42-44	'47-50	'64	'70	'81	'86
Charadriiformes									
Chlidonias niger	Black Tern	.	.	.	+	.	.	.	.
Charadrius semipalmatus	Semipalmated Sandpiper	.	.	.	+	.	.	.	.
Micropalama himantopus	Stilt Sandpiper	.	.	.	+	.	.	.	.
Calidris bairdii	Baird's Sandpiper	.	.	.	+	.	.	.	.
Pluvialis squatarola	Black-bellied Plover	.	.	.	+	.	.	.	.
Charadrius vociferus	Killdeer	+	+	.	+	+	+	.	+
Philohela minor	American Woodcock	.	+	+	+	+	.	+	+
Tringa melanoleuca	Greater Yellowlegs	+	+	.	+	.	.	.	+
Tringa solitaria	Solitary Sandpiper	+	+	.	+	.	.	.	+
Tringa flavipes	Lesser Yellowlegs	.	.	.	+	+	.	.	.
Actitis macularia	Spotted Sandpiper	+	+	.	+	+	+	+	+
Larus argentatus	Herring Gull	.	.	.	+	.	.	.	+
Larus delawarensis	Ring-billed Gull	.	.	.	+	.	.	.	+
Larus philadelphia	Bonaparte's Gull	.	.	.	+	.	.	.	+
Capella gallinago	Common Snipe	.	+	.	+	+	.	.	.
Calidris melanotos	Pectoral Sandpiper	.	.	.	+	.	.	.	.
Apodiformes									
Chaetura pelagica	Chimney Swift	+	+	.	+	+	.	.	+
Archilochus colubris	Ruby-throated Hummingbird	+	+	+	+	+	.	.	+
Coraciiformes									
Megaceryle alycon	Belted Kingfisher	+	+	.	+	+	+	+	+
Piciformes									
Colaptes auratus	Common Flicker	+	+	+	+	+	+	+	+
Sphyrapicus varius	Yellow-bellied Sapsucker	+	+	.	+	+	.	+	+
Picoides villosus	Hairy Woodpecker	+	+	+	+	+	+	.	+
Picoides pubescens	Downy Woodpecker	+	+	+	+	+	+	+	+
Dryocopus pileatus	Pileated Woodpecker	+	+	+	+	+	+	.	+
Melanerpes erythrocephalus	Red-headed Woodpecker	.	.	.	.	.	.	.	+

Order/Species	Common Name	'37	'40	42-44	'47-50	'64	'70	'81	'86
Columbiformes									
Zenaida macroura	Mourning Dove	+	.	+	+	+	+	+	+
Gruiformes									
Porzana carolina	Sora	.	+	.	.	.	.	.	+
Cuculiformes									
Coccyzus erythropthalmus	Black-billed Cuckoo	+	+	+	.	.	+	+	.
Coccyzus americanus	Yellow-billed Cuckoo	.	.	+	.	.	.	.	.
Falconiformes									
Cathartes aura	Turkey Vulture	.	.	.	+	+	.	+	+
Pandion haliaetus	Osprey	+	+	.	+	+	+	.	+
Circus cyaneus	Northern Harrier	+	+	.	+	+	.	.	+
Accipiter striatus	Sharp-shinned Hawk	.	.	+	.	.	.	.	+
Accipiter cooperii	Cooper's Hawk	+	+	.	.	.	+	.	+
Accipiter gentilis	Northern Goshawk	.	.	.	.	.	.	.	+
Buteo jamaicensis	Red-tailed Hawk	.	.	.	+	+	+	+	+
Buteo platypterus	Broad-winged Hawk	.	.	.	+	+	+	+	+
Buteo lagopus	Rough-legged Hawk	.	.	.	.	.	.	.	+
Falco rusticolus	Gyrfalcon	.	.	.	.	.	.	.	+
Falco sparverius	American Kestrel	.	.	.	+	+	+	.	+
Buteo lineatus	Red-shouldered Hawk	.	.	.	+	+	.	+	.
Haliaeetus lencocephalus	Bald Eagle	.	.	+	.	.	.	.	+
Galliformes									
Phasianus colchicus	Ring-necked Pheasant	+	+	.	.	.	.	.	.
Bonasa umbellus	Ruffed Grouse	+	+	+	+	+	+	+	+
Meleagris gallopavo	Wild Turkey	.	.	.	.	.	.	+	+
Colinus virginianus	Bobwhite	.	.	.	+	+	+	+	.
Strigiformes									
Aegolius acadicus	Saw-whet Owl	.	+	.	+	.	+	.	.
Asio otus	Long-eared Owl	+	+	.	.	.	.	+	+
Bubo virginianus	Great Horned Owl	+	+	+	+	+	+	.	+
Nyctea scandiaca	Snowy Owl	.	.	.	+	.	.	.	.
Otis asio	Screech Owl	+	+	.	+	+	.	.	+

Order/Species	Common Name	'37	'40	'42-44	'47-50	'64	'70	'81	'86
Strix varia	Barred Owl	+	+	?	.	.	.	.	+
Pelecaniformes									
Phalacrocorax auritus	Double-crested Cormorant	.	.	.	.	.	.	.	+
Caprimulgiformes									
Caprimulgus vociferus	Whip-poor-will	+	+	.	.	.	.	.	+
Chordeiles minor	Common Nighthawk	+	+	.	.	+	.	.	.
Passeriformes									
Tyrannus tyrannus	Eastern Kingbird	+	+	+	+	+	+	+	+
Myiarchus crinitus	Great Crested Flycatcher	+	+	+	+	+	+	+	+
Sayornis phoebe	Eastern Phoebe	+	+	+	+	+	+	+	+
Empidonax traillii	Willow Flycatcher	.	.	.	.	.	.	.	+
Empidonax alnorum	Alder Flycatcher	+	+	+	.	.	.	.	+
Empidonax flaviventris	Yellow-bellied Flycatcher	.	.	.	+	.	.	.	.
Empidonax minimus	Least Flycatcher	+	+	.	.	+	+	+	+
Contopus virens	Eastern Pewee	+	+	+	.	+	+	+	+
Nuttallornis borealis	Olive-sided Flycatcher	.	.	.	.	.	.	.	+
Eremophila alpestris	Horned Lark	.	+	.	+	.	+	.	+
Iridoprocne bicolor	Tree Swallow	+	+	.	+	+	+	.	+
Stelgidopteryx ruficollis	Rough-winged Swallow	+	+	.	+	+	.	.	.
Riparia riparia	Bank Swallow	+	+	.	.	.	.	.	+
Hirundo rustica	Barn Swallow	+	+	.	+	+	+	+	+
Progne subis	Purple Martin	+	+	.	.	.	.	.	.
Petrochelidon pyrrhonota	Cliff Swallow	+	+	.	+	.	.	.	+
Cyanocitta cristata	Blue Jay	+	+	+	+	+	+	+	+
Corvus corax	Northern Raven	.	.	.	.	.	.	.	+
Corvus brachyrhynchos	Common Crow	+	+	+	+	+	+	+	+
Parus atricapillus	Black-capped Chickadee	+	+	+	+	+	+	+	+
Parus bicolor	Tufted Titmouse	.	.	.	.	.	.	.	+
Sitta carolinensis	White-breasted Nuthatch	+	+	+	+	+	+	+	+

Order/Species	Common Name	'37	'40	'42-44	'47-50	'64	'70	'81	'86
Passeriformes(Cont.)									
Sitta canadensis	Red-breasted Nuthatch	.	+	.	+	.	.	.	+
Certhia familiaris	Brown Creeper	.	+	.	+	+	+	.	+
Troglodytes aedon	House Wren	+	.	+	+	+	+	+	+
Troglodytes troglodytes	Winter Wren	.	+	.	+	.	.	.	+
Cistothorus palustris	Long-billed Marsh Wren	+	+	.	.	.	.	.	+
Mimus polyglottos	Northern Mockingbird	.	.	.	.	.	.	.	+
Dumetella carolinensis	Grey Catbird	+	+	+	+	+	+	+	+
Toxostoma rufum	Brown Thrasher	.	.	+	+	.	+	.	+
Turdus migratorius	American Robin	+	+	+	+	+	+	+	+
Hylocichla mustelina	Wood Thrush	+	+	.	+	+	+	+	+
Catharus guttatus	Hermit Thrush	+	+	+	+	.	.	.	+
Catharus minimus	Grey-cheeked Thrush	.	+	.	+	.	.	.	.
Catharus ustulatus	Swainson's Thrush	.	+	.	+	.	.	.	.
Catharus fuscescens	Veery	+	+	+	+	+	+	+	+
Sialia sialis	Eastern Bluebird	+	+	+	+	.	+	.	+
Regulus satrapa	Golden-crowned Kinglet	.	+	.	+	.	+	+	+
Regulus calendula	Ruby-crowned Kinglet	.	+	.	+	.	.	.	+
Anthus spinoletta	Water Pipit	.	+	.	+	.	.	+	.
Bombycilla cedrorum	Cedar Waxwing	+	+	+	+	+	+	+	+
Lanius excubitor	Northern Shrike	.	+	.	+	.	.	.	+
Vireo solitarius	Solitary Vireo	.	+	.	+	.	.	.	+
Vireo olivaceus	Red-eyed Vireo	+	.	+	+	+	.	.	+
Vireo gilvus	Warbling Vireo	.	.	.	.	.	+	.	+
Vireo flavifrons	Yellow-throated Vireo	+	+	.	.	+	+	.	.
Mniotilta varia	Black and White Warbler	+	+	+	+	.	+	+	+
Vermivora pinus	Blue-winged Warbler	.	.	.	.	.	.	+	+
Vermivora crysoptera	Golden-winged Warbler	.	.	+	.	.	+	+	+
Vermivora peregrina	Tennessee Warbler	.	+	.	+	.	.	.	+
Vermivora ruficapilla	Nashville Warbler	.	+	+	+	.	+	+	+
Parula americana	Parula Warbler	.	+	.	+	.	.	.	+
Dendroica petechia	Yellow Warbler	+	+	.	+	+	+	+	+

Order/Species	Common Name	'37	'40	'42-44	'47-50	'64	'70	'81	'8
Passeriformes(Cont.)									
Dendroica magnolia	Magnolia Warbler	.	+	+	+	+	+	.	+
Dendroica tigrina	Cape May Warbler	.	+	.	+	.	.	.	+
Dendroica caerulescens	Black-throated Blue Warbler	+	+	+	+	+	+	.	+
Dendroica coronata	Yellow-rumped Warbler	.	+	.	+	+	.	.	+
Dendroica pensylvanica	Chestnut-sided Warbler	+	+	+	+	+	+	+	+
Dendroica virens	Black-throated Green Warbler	+	+	+	.	.	+	+	+
Dendroica fusca	Blackburnian Warbler	.	+	+	+	.	+	+	+
Dendroica castanea	Bay-breasted Warbler	.	+	.	+	.	+	.	+
Dendroica striata	Blackpoll Warbler	.	+	.	+	.	+	.	+
Dendroica pinus	Pine Warbler	.	.	.	.	.	.	.	+
Dendroica discolor	Prairie Warbler	.	.	.	.	.	.	+	+
Dendroica palmarum	Palm Warbler	.	+	.	+	.	.	.	.
Seiurus noveboracensis	Northern Waterthrush	.	+	.	+	+	+	.	+
Seiurus motacilla	Louisiana Waterthrush	+	+	.	+	+	+	+	+
Seiurus aurocapillus	Ovenbird	+	+	+	+	+	+	+	+
Geothylpis trichas	Common Yellowthroat	+	+	+	+	+	+	+	+
Icteria virens	Yellow-breasted Chat	.	.	+	.	.	.	+	+
Wilsonia pusilla	Wilson's Warbler	.	+	.	.	.	.	.	+
Wilsonia canadensis	Canada Warbler	+	+	+	+	+	+	+	+
Oporornis philadelphia	Mourning Warbler	.	.	.	.	+	.	.	.
Setophaga ruticilla	American Redstart	.	+	+	+	+	+	+	+
Dolichonyx oryzivorus	Bobolink	+	+	.	+	+	+	.	+
Sturnella magna	Eastern Meadowlark	+	+	.	+	.	+	.	+
Agelaius phoeniceus	Red-winged Blackbird	+	+	+	+	+	+	+	+
Icterus galbulns	Northern Oriole	+	+	+	+	+	+	+	+
Euphagus carolinus	Rusty Blackbird	.	+	.	.	.	.	.	.
Quiscalus quiscula	Common Grackle	+	+	.	+	+	+	+	+
Molothrus ater	Brown-headed Cowbird	+	+	+	+	+	+	.	+
Sturnus vulgaris	European Starling	+	+	+	+	+	+	.	+
Piranga olivacea	Scarlet Tanager	+	+	+	+	+	+	+	+

Order/Species	Common Name	'37	'40	'42-44	'47-50	'64	'70	'81	'86
Passeriformes(Cont.)									
Cardinalis cardinalis	Northern Cardinal	.	.	.	.	+	.	+	+
Pheucticus ludovicianus	Rose-breasted Grosbeak	+	+	+	+	+	+	+	+
Passerina cyanea	Indigo Bunting	+	+	+	+	+	.	.	+
Carpodacus purpureus	Purple Finch	+	+	+	+	.	+	+	+
Carpodacus mexicanus	House Finch	.	.	.	.	.	.	.	+
Pinicola enucleator	Pine Grosbeak	.	+	.	+	.	.	.	+
Hesperiphona vespertina	Evening Grosbeak	.	.	.	.	.	.	.	+
Carduelis flammea	Common Redpoll	.	+	.	.	.	.	.	+
Carduelis tristis	American Goldfinch	+	+	+	+	+	+	+	+
Carduelis pinus	Pine Siskin	.	.	.	.	.	.	.	+
Loxia curvirostra	Red Crossbill	.	.	.	.	.	.	.	+
Loxia leucoptera	White-winged Crossbill	.	.	.	.	.	.	.	+
Pipilo erythrophthalmus	Rufous-sided Towhee	+	+	+	+	+	+	+	+
Passerculus sandwichensis	Savannah Sparrow	.	+	.	.	.	.	.	+
Spizella arborea	American Tree Sparrow	.	+	.	.	.	.	+	+
Spizella passerina	Chipping Sparrow	+	+	+	.	+	+	.	+
Spizella pusilla	Field Sparrow	+	+	+	.	+	+	+	+
Junco hyemalis	Northern Junco	.	+	.	.	+	.	.	+
Zonotrichia leucophrys	White-crowned Sparrow	.	.	.	.	.	.	.	+
Zonotrichia albicollis	White-throated Sparrow	.	+	.	.	.	+	+	+
Passerella iliaca	Fox Sparrow	.	+	.	.	.	.	.	+
Melospiza georgiana	Swamp Sparrow	+	+	+	.	+	.	.	+
Melospiza lincolni	Lincoln's Sparrow	.	.	.	.	+	.	.	.
Melospiza melodia	Song Sparrow	+	+	+	.	+	+	+	+
Passer domesticus	House Sparrow	+	+	.	+	+	.	.	.
Ammodramus henslowii	Henslow's Sparrow	.	+	.	+	.	.	.	.
Pooecetes gramineus	Vesper Sparrow	+	+	.	+	+	.	.	.
Ammodramus savannarum	Grasshopper Sparrow	+	+	.	.	.	.	.	.
Plectrophenax nivalis	Snow Bunting	.	+	.	.	.	.	.	+
Species Total	193	90	130	59	132	85	79	65	15

1937 Hamilton
1940 Odum
1942 Kendiegh
1950 Harper
1964 Dalgleish
1970 Blouin
1982 Bingman
1986 Steadman

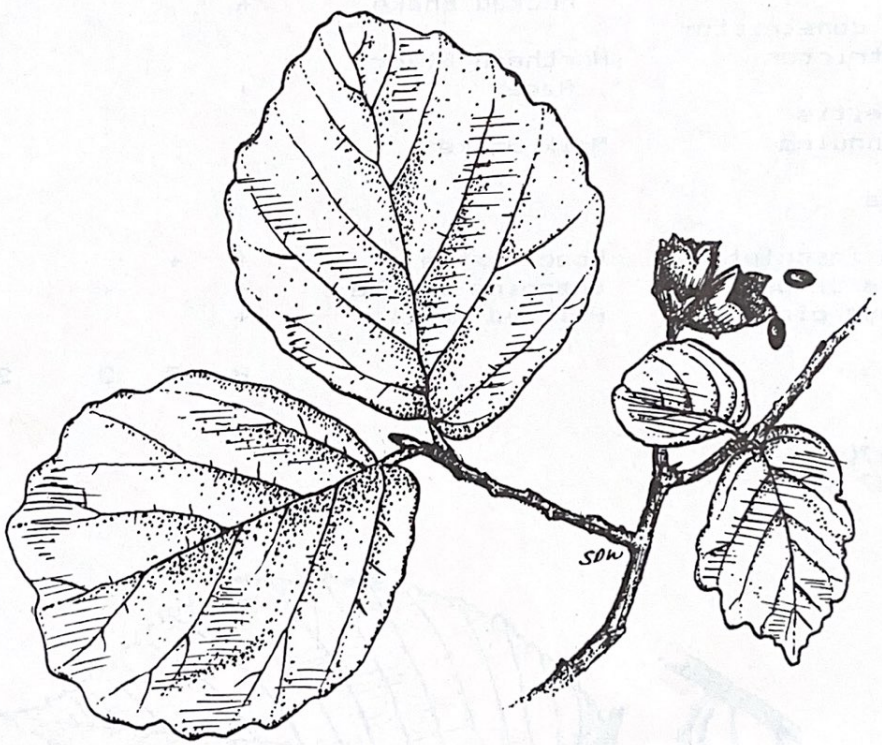


Table 3. Reptiles collected on the Edmund Niles Huyck Preserve.

REPTILES

Order/Species	Common Name	Year 19-- '37	'40	'47	'70-72	'81	'87
Squamata							
Thamnophis sirtalis	Garter Snake	+	+	+	+		+
Storeria dekayi	Brown Snake						+
Storeria occipitomaculata	Red-bellied Snake	+			+		+
Diadophus punctatus	Northern Ring-necked Snake	+					+
Coluber constrictor constrictor	Northern Black Racer	+					
Lampropeltis triangulum	Milk Snake	+					+
Testudines							
Clemmys insculpta	Wood Turtle	+	+				
Chelydra serpentina	Snapping Turtle	+		+			+
Chrysemys picta	Painted Turtle	+					+
		8	2	2	2		7

Blouin 1970
Wyman 1987

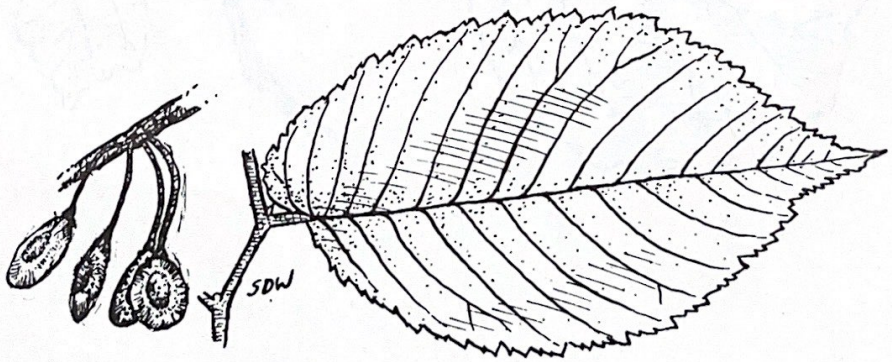


Table 4. Amphibians collected on the Edmund Niles Huyck Preserve.

AMPHIBIANS

Order/Species	Common Name	Year 19-- '37	'40	'47	'70-72	'81	'86
Anura							
Rana clamitans	Green Frog	+	+				+
Rana catesbeiana	Bullfrog	+	+		+		+
Rana pipiens	Nothern Leopard Frog	+	+		+		+ – I may be in pit Fall trap?
Rana palustris	Pickerel Frog	+	+				+
Rana sylvatica	Wood Frog	+	+		+		+
Hyla crucifer	Spring Peeper	+	+	+	+		+
Hyla versicolor	Gray Treefrog	+	+	+			+
Bufo americanus	American Toad	+	+		+		+
Bufo fowleri	Fowlers Toad	?					+ ?
Caudata							
Ambystoma maculatum	Spotted Salamander	+	+				+
Ambystoma jeffersonianum	Jefferson's Salamander		+				+ 1989 yes
Notophthalmus viridescens	Common Newt	+	+		+		+
Desmognathus fuscus	Northern Dusky Salamander	+					+
Desmognathus ochrophaeus	Mountain Dusky Salamander	+					1 yr 1984-91 (NO)
Plethodon glutinosus	Slimy Salamander	+					
Plethodon cinereus	Red-backed Salamander	+					+
Gyrinophilus porphyriticus	Spring Salamander	+					(+) not yes
Pseudotriton ruber	Red Salamander	+					(No)
Eurycea bislineata	Two-lined Salamander	+					+
		17	11	2	6		15

1940 E.Odum -- J. Piatt
1986-87 Wyman

Table 5. Fishes collected on the Edmund Niles Huyck Preserve.

FISH

Family/Species	Common Name	Year 19-- '37	'40-41	'45	'50	'81	'87
Ictaluridae							
Ictalurus nebulosus	Brown Bullhead	+		+			+
Ictalurus natalis	Yellow Bullhead			+			+
Esocidae							
Esox niger	Chain Pickerel	+	+	+			+
Esox lucius	Northern Pike						+
Centrarchidae							
Lepomis gibbosus	Pumpkinseed Sunfish	+	+	+			+
Lepomis macrochirus	Bluegill Sunfish	?					
Micropterus dolomieui	Small-mouth Bass	+		+			+
Micropterus salmoides	Large-mouth Bass	+					
Pomoxis annularis	White Crappie			+			
Pomoxis nigromaculatus	Black Crappie	+		+			+
Percidae							
Perca flavescens	Yellow Perch	+	+	+			+
Salmonidae							
Salvelinus fontinalis	Brook Trout	+					
Salmo trutta	Brown Trout	+					
Salmo gairdneri	Rainbow Trout	+					
Percichthyidae							
Morone americana	White Perch			+			+
Cyprinidae							
Notropis cornutus	Common Shiner	+					
Notemigonus crysoleucas	Golden Shiner	+	+	+			+
Semotilus atromaculatus	Northern Creek Chub			+			+
Catastomidae							
Catostomus commersani	White Sucker	+		+			
Anguillidae							

Anguilla rostrata	Americana eel				+	
Cyprinodontidae						
Fundulus diaphanus	Banded Killifish	?				
		14	4	13		11

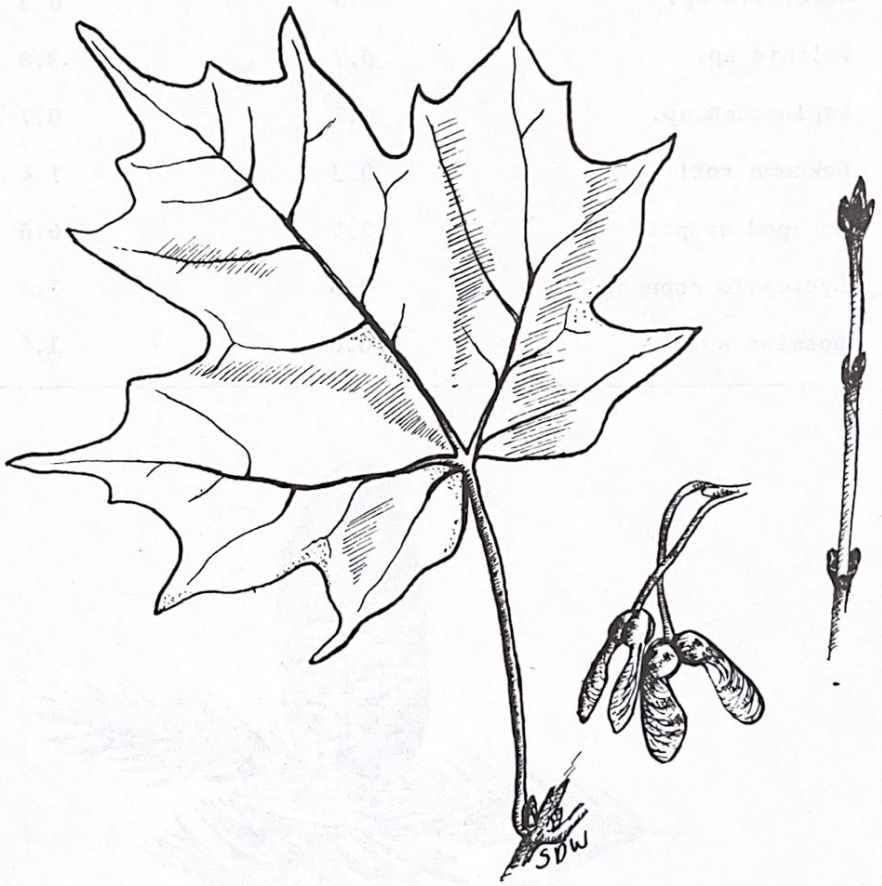


Table 6. Zooplankton in Lincoln Pond on 4 October 1975.

Species	0-m depth #/liter	1.5-m depth #/liter
Polyarthra sp.	6.6	5.2
Keratella quadrate	0.0	0.3
Keratella sp.	1.0	0.3
Filinia sp.	0.7	3.8
Asplanchna sp.	0.3	0.7
Unknown rotifer	0.3	1.4
Copepod nauplii	12.5	6.6
Cyclopoid copepod	0.3	1.4
Bosmina sp.	0.0	1.4

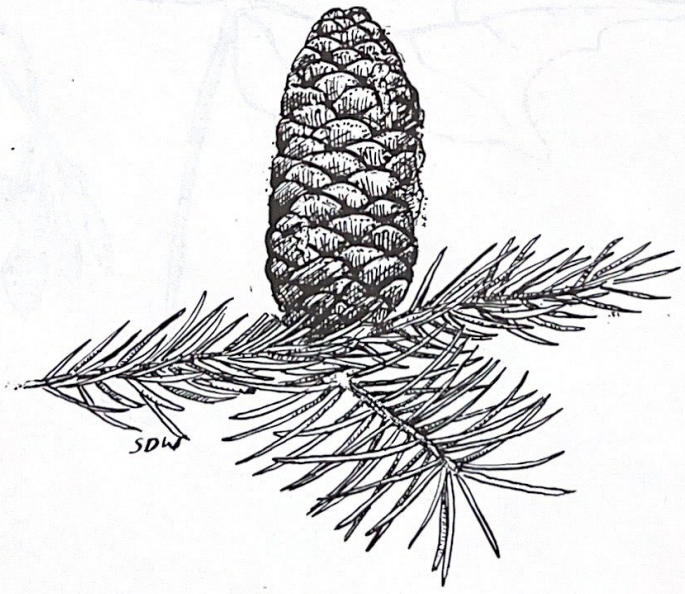


Table 7. Zooplankton in Lake Myosotis on 25 October 1975.

Species	0-m depth #/liter	1.5-m depth #/liter
Polyarthra euryptera	27.0	42.7
Polyarthra vulgaris	328.3	314.8
Polyarthra dolichoptera?	3.8	0.0
Keratella sp.	58.2	50.9
Keratella sp.	9.0	13.9
Keratella quadrata	1.0	2.4
Keratella cochlearis	241.3	275.6
Kellicottia bostoniensis	0.7	0.7
Synchaeta sp.	11.8	8.7
Asplanchan priodonta	4.2	6.6
Ascomorpha sp.	0.0	11.8
Filinia sp.	0.0	0.4
Copepod nauplii	5.9	5.9
Mesocyclops edax	2.1	2.1
Daphnia parvula?	0.0	0.4
Bosmina coregoni	0.0	0.4

Likens et al. 1976.

Table 8. Zooplankton (#/liter) in Lincoln Pond and Lake Myosotis on 20 July 1976 (unpublished data of J. Makarewicz).

Species	Lincoln Pond	Lake Myosotis	
	1.25-m depth	1.25-m depth	2.50-m depth
Polyarthra vulgaris	575.1	196.5	445.8
Polyarthra euryptera	1.0	163.6	21.5
Keratella sp.	0.7	0.0	32.3
Keratella cochlearis	80.4	67.6	304.7
Keratella earlinae	1.0	4.2	40.6
Kellicottia bostoniensis	1.7	0.4	1.7
Kellicottia longispina	1.7	8.7	0.7
Filinia sp.	354.6	0.4	0.0
Diaptomus oregonensis	1.0	23.6	0.4
Copepod nauplii	28.1	83.9	5.5
Colurella sp.	4.9	1.7	0.0
Trichocera sp.	0.4	-	0.0
Synchaeta sp.	0.7	-	5.2
Asplanchna priodonta	1.4	-	1.4
Bosmina coregoni	0.4	-	0.4
Daphnia parvula?	0.4	1.7	1.0
Pompholyx sulcata	1.7	115.4	18.0
Diaphonosoma brachyurum	0.0	39.2	0.0
Mesocyclops edax	0.7	12.8	4.9

Table 9. A partial listing of invertebrate taxa collected from various aquatic habitats within the Huyck Preserve, New York.

Taxon			Below Rensselaerville Falls	Lake Myosotis	Tributary to outlet, Lincoln Pond	Outlet, Lincoln Pond	Lincoln Pond
Ephemeroptera	Heptageniidae	Stenonema vicarium	A	-	B	A	-
		Stenonema tripunctatum	A	A	B	B	A
		Stenonema ithaca	A	-	B	A	-
	Ephemerellidae	Ephemerella sp.	A				
	Leptophlebiidae	Paraleptophlebia sp.	B		A		
	Baetidae	Baetis sp.	A		B	C	
		Pseudocloeon sp.	C				
Plecoptera	Chloropirlidae	Alloperla sp.			A	C	
	Perlidae	Acroneuria sp.	A		B	B	
	Leuctridae	Leuctra sp.	?		?	B	
	Nemouridae	Nemoura (S.L.) sp.	?		?	B	
Trichoptera	Rhyacophilidae	Rhyacophila sp.	B		B	B	
	Helicopsychidae	Helicopsyche sp.	A		-	-	
	Hydropsuchidae	Hydropsyche sp.	A		B	B	
		Cheumatopsyche sp.	C		B	A	
	Philopotamidae	Chimaura	A		B	B	
	Hydroptilidae	Ochrotrichia	A		-	-	
		Leucotrichia	A		-	-	
Odonata	Agrionidae	Agrion sp.	C		-		
	Coenagrionidae				-		A
	Aeschnidae	Boyeria	C		-		
Diptera	Simuliidae	Simulinm spp.	A		A	A	
	Psycodidae	Pericoma albitarsis	B		-	-	
	Tipulidae	Tipula and others	B		B	B	
Crustacea	O. Amphipoda	Hyalella azteca	A		-	A	A
	O. Isopoda	Asellus	A		-	A	A
Mollusca	Physidae	Physa sp.	A		-	B	A

A = abundant
B = common
C = rarer

APPENDIX 1. Tables 10 through 15 are from Hamilton (1937) and list various categories of vegetation found on the Preserve.

Table 10. Trees of the Edmund Niles Huyck Preserve in 1937.

White Pine - *Pinus strobus*

Hemlock - *Tsuga canadensis*

American Yew - *Taxus Canadensis*

Willow - *Salix sp.*

American Aspen - *Populus tremuloides*

Large-toothed Aspen - *Populus grandidentata*

Black Walnut - *Juglans nigra*

Yellow Birch - *Betula lutea*

Black Birch - *Betula lenta*

White Birch - *Betula populifolia*

Canoe Birch - *Betula papyrifera*

Shellbark Hickory - *Carya ovata*

Hop Hornbeam - *Ostrya virginiana*

American Hornbeam - *Carpinus caroliniana*

Speckled Alder - *Alnus incana*

Beech - *Fagus grandifolia*

Red Oak - *Quercus rubra*

American Elm - *Ulmus americana*

Smooth-leaved Shadbush - *Amelanchiar laevis*

Black Cherry - *Prunus serotina*

Choke Cherry - *Prunus virginiana*

Pin Cherry - *Prunus pennsylvanica*

Striped Maple - *Acer pennsylvanicum*

Mountain Maple - *Acer spicatum*

Sugar Maple - *Acer saccharum*

Red Maple - *Acer rubrum*

Basswood - Tilia americana

Alternate-leaved Dogwood - Cornus alternifolia

White Ash - Fraxinus americana

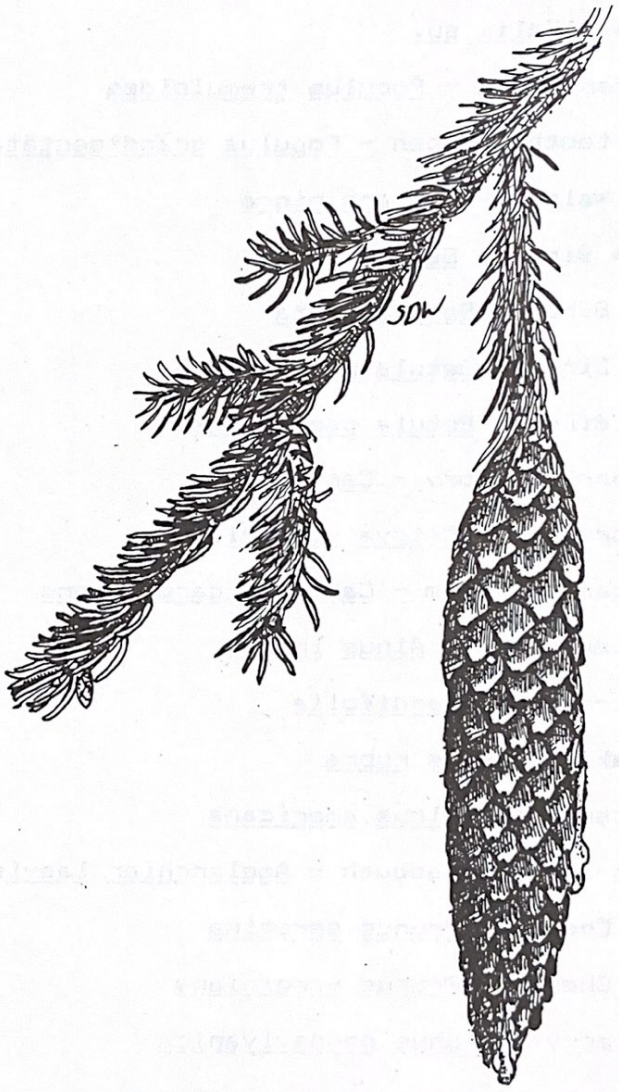


Table 11. Shrubs and vines identified by Hamilton (1937) on the E. N. Huyck Preserve.

Hazelnut - *Corylus americana*

Witch Hazel - *Hamamelis virginiana*

Thorn Apple - *Cratacgus sp.*

Staghorn Sumac - *Rhus typhina*

Poison Ivy - *Rhus toxicodendron*

Black Alder - *Ilex verticillata*

Virginia Creeper - *Psedera quinquefolia*

Climbing Bittersweet - *Celastrus scandens*

Leatherwood - *Dirca palustris*

Bush Honeysuckle - *Diervilla Lonicera*

Fly Honeysuckle - *Lonicera canadensis*

Hobble Bush - *Viburnum alnifolium*

Dockmackie - *Viburnum acerifolium*

Arrowwood - *Viburnum dentatum*

Nannyberry - *Viburnum Lentago*

Elder - *Sambucus canadensis*

Red-berried Elder - *Sambucus racemosa*

Table 12. Herbs and low shrubby plants found on the E. N. Huyck Preserve in 1937 by Hamilton (1937).

HERBS AND LOW SHRUBBY PLANTS

Skunk Cabbage - *Symplocarpus foetidus*

Day Flower - *Commelina virginica*

Clintonia - *Clintonia borealis*

Twisted Stalk - *Streptopus roseus*

False Spikenard - *Smilacina racemosa*

False Solomon's Seal - *Smilacina stellata*

Canada Mayflower - *Maianthemum canadense*

Solomon's Seal - *Polygonatum biflorum*

Bellwort - *Uvularia perfoliata*

Wake Robin - *Trillium erectum*

Painted Trillium - *Trillium undulatum*

Indian Cucumber-root - *Medeola virginiana*

White Hellebore - *Veratrum viride*

Canada Lily - *Lilium canadense*

Star Grass - *Hypoxis hirsuta*

Blue Flag - *Iris versicolor*

Blue-eyed Grass - *Sisyrinchium angustifolium*

Green Round-leaved Orchis - *Habenaria orbiculata*

Yellow Lady's Slipper - *Cypripedium parviflorum*

Moccasin Flower - *Cypripedium acaule*

Rattlesnake Plantain - *Serapias Helleborine*

Wild Ginger - *Asarum canadense*

Curled Dock - *Rumex crispus*

Sheep Sorrel - *Rumex acetosella*

Swamp Dock - *Rumex verticillatus*

Lady's Thumb - *Polygonum Persicaria*

Pennsylvania Persicaria - Polygonum Pennsylvanicum

Tearthumb - Polygonum sagittatum

Pigweed - Amaranthus retroflexus

Tumble Weed - Amaranthus graecizans

Bouncing Bet - Saponaria officinalis

Chickweed - Stellaria media

Thimble Weed - Anemone virginianum

Tall Meadow Rue - Thalictrum polygamum

Swamp Buttercup - Ranunculus septentrionalis

Tall Buttercup - Ranunculus acris

Red Baneberry - Actaea rubra

White Baneberry - Actaea alba

Blue Cohosh - Caulophyllum thalictroides

May Apple - Podophyllum peltatum

Dutchman's Breeches - Dicentra cucullaria

Squirrel Corn - Dicentra canadensis

Pepper Grass - Lepidium virginicum

Shepherd's Purse - Capsella Bursa-pastoris

Live-forever - Sedum purpureum

Swamp Saxifrage - Saxifraga Pennsylvanica

Foamflower - Tiarella cordifolia

Bishop's Cap - Mitella diphylla

Meadowsweet - Spiraea latifolia

Hardhack - Spiraea tomentosa

Agrimony - Agrimonia striata

Purple Flowering Raspberry - Rubus odoratus

Wild Strawberry - Fragaria virginaiana

Wood Strawberry - Fragaria vesca

Cinquefoil - Potentilla spp. (several sp.)

Smooth Rose - Rosa blanda

Rabbit-foot Clover - Trifolium arvense

Red Clover - Trifolium pratense

Hop Clover - Trifolium agrarium

Tick Trefoil - Desmodium nudiflorum

Ground Nut - Apios tuberosa

Hog Peanut - Amphicarpa monoica

Cranesbill - Geranium maculatum

Herb Robert - Geranium robertianum

Wood Sorrel - Oxalis acetosella

Yellow Wood Sorrel - Oxalis corniculata

Pale Jewelweed - Impatines pallida

Spotted Touch-me-not - Impatiens biflora

Common Mallow - Malva rotundifolia

Common St. Johnswort - Hypericum perforatum

Small-flowered St. Johnswort - Hypericum mutilum

Common Violet - Viola papilionacea

Selkirk's Violet - Viola Selkirkii

Sweet White Violet - Viola blanda

Round-leaved Violet - Viola rotundifolia

Downy Yellow Violet - Viola pubescens

Evening Primrose - Oenothera biennis

Alpine Nightshade - Circaea alpina

Enchanter's Nightshade - Circaea latifolia

Spikenard - Aralia racemosa

Wild Sarsaparilla - Aralia nudicaulis

Wild Carrot - Daucus Carota

Cow Parsnip - Heracleum lanatum

Wild Parsnip - Pastinaca sativa

Meadow Parnip - Zizia aurea

Bunchberry - Cornus canadensis

Prince's Pine - Chimaphila umbellata

Small Pyrola - Pyrola secunda

Checkerberry - Gaultheria procumbens

Star Flower - Trientalis americana

Fringed Loosestrife - Steironema ciliatum

Moneywort - Lysimachia Nummularia

Bottle Gentian - Gentiana Andrewsii

Spreading Dogbane - Apocynum androsaemifolium

Common Milkweed - Asclepias syriaca

Hedge Bindweed - Convolvus sepium

Joe-Pye-weed - Eupatorium purpureum

Boneset - Eupatorium perfoliatum

White Snakeroot - Eupatorium urticaefolium

Blue-stemmed Goldenrod - Solidago caesia

Broad-leaved Goldenrod - Solidago latifolia

Silver-rod - Solidago bicolor

Early Goldenrod - Solidago juncea

Lanced-leaved Goldgenrod - Solidago graminifolia

Large-leaved Aster - Aster macrophyllus

Purple-stemmed Aster - Aster puniceus

Robin's Plantain - Erigeron pulchellus

Daisy Fleabane - Erigeron annuus

Everlasting - Antennaria plantaginifolia

Pearly Everlasting - Anaphalis margaritacea

Oxeye Daisy - Chrysanthemum Leucanthemum var. pinnatifidum

Tansy - Tanacetum vulgare

Coltsfoot - Tussilago Farfara

Ragwort - Senecio vulgaris

Burdock - Arctium minus

Bull Thistle - Cirsium lanceolatum

Canada Thistle - Cirsium arvense

Chicory - Cichorium intybus

Dandelion - Taraxacum officinale

Wild Lettuce - Lactuca canadensis

Tawny Hawkweed - Hieracium aurantiacum

Fall Dandelion - Leontodon autumnalis

Heart-leaved Aster - Aster cordifolius

Sharp-leaved Aster - Aster acuminatus

Thyme-leaved Speedwell - Veronica serpyllifolia

Barren Strawberry - Waldsteinia fragarioides

Table 13. Ferns of the E. N. Huyck Preserve (Hamilton 1937)

FERNS

Polypodium vulgare

Phegopteris hexagonoptera

Adiantum pedatum

Pteris aquilina

Woodwardia virginica

Asplenium ebenoides

Asplenium Trichomanes

Polystichum acrostichoides

Aspidium noveboracense

Cystopteris bulbifera

Onoclea sensibilis

Osmunda cinnamomea

Botrychium virginianum

Dryopteris Thelypteris

Table 14. Aquatic plants found on the E. N. Huyck Preserve by Hamilton (1937).

AQUATIC PLANTS

Common Cattail - *Typha latifolia*

Narrow-leaved Bur-reed - *Sparganum angustifolium*

Bur-reed - *Sparganum americanum*

Curly Pondweed - *Potamogeton crispus*

Water Plantain - *Alisma plantago-aquatica*

Arrow-head - *Sagittaria heterophylla*

Water-weed - *Elodea canadensis*

Red-jointed Grass - *Glyceria grandis*

Jointed Grass - *Glyceria septentrionalis*

Water Rush - *Scirpus fluviatilis*

Tufted Loosestrife - *Lysimachia thrysoflora*

Eleocharis sp.

Water St. Johnswort - *Hypericum mutilum*

Duckweed - *Lemna minor*

Hornwort - *Ceratophyllum demersum*

Watercress - *Nasturtium nasturtium-aquaticum*

Water Purslane - *Ludvigia palustris*

Chara sp.

Horsetail - *Equisetum fluviatile*

Nitella sp.

Table 15.

SAPROPHYTES AND PARASITES

Obviously but a small percent of the fungi have been listed for the Preserve, even though conditions were uncommonly favorable for their growth during early August of 1937. Many are late, not making their appearance until September or October. Not a few have their season prior to the summer.

A. Flowering Plants

Beech Drops - Epifogus virginiana

Squaw Root - Conopholis americana

Indian Pipe - Monotropa uniflora

B. Fungi

Amanita muscaria

Amanita phalloides

Amanitopsis vaginata

Boletus granulatus

Boletus sp.

Calvatia gigantea

Calvatia sp.

Cantharellus cibarius

Clavaria fusiformis

Clavaria botrytis

Clavaria pyxidata

Clitocybe ochropurpurea

Collybia platyphylla

Fistulina hepatica

Lactarius piperatus

Lactarius subdulcis

Lepiota procera

Lycoperdon gemmatum

Lycoperdon pyriforme

Marasmius rotula

Mycena sp.

Pholiota sp.

Polyporus elegans

Polyporus versicolor

Russula foetens

Russula emetica

Russula sp.

Spathularia velutipes

Fomes applanatus

Fomes fomentarius

Ganoderma tsugae

Hypomyces lactifluorum

Hymenochaete tobacina

Daldinia concentrica

Tremellodon gelatinosum

Pleurotus ostreatus

Hygrophorus miniatus

Mycena sp.

Tremellodendron sp.

Pluteus cervinus

Table 16. Mosses of the E. N. Huyck Preserve collected by Coleman (1970).

MOSSES (Musci)

Sphagnobrya

Sphagnacceae

Sphagnum sp.

Eubrya

Fissidentaceae

Fissidens adiantoides Hedw.
F. Bryoides Hedw.
F. Bushii (card. and ther.) card. and ther.
F. cristatus Wils. ex. witt.
F. minutulus Sull.
F. osmundioides Hedw.

Ditrichaceae

Pleuridium subulatum (Hedw.) Rabenh.
Ditrichum pallidum (Hedw.) Hampe
D. pusillum (Hedw.) Hampe
Ceratudon purpureus (Hedw.) Brid.

Dicranaceae

Dicranella heteromalla (Hedw.) Schimp.
D. rufescens (With.) Schimp.
D. schreberiana (Hedw.) Schimp.
D. varia (Hedw.) Schimp.

Dicranum flagellare Hedw.

D. fuscesens Turn.
D. montanum Hedw.
D. sabuletorum Ren. and Card.
D. scoparium Hedw.
D. undulatum Brid.
D. viride (Sull. and Lesq. ex. Sull.) Lindb.

Leucobryaceae

Leucobryum glaucum (Hedw.) Angstr. ex. Fr.

Pottiaciae

Trichostomum tenuirostre (Hook. and Tayl.) Lindb.
Tortella tortuosa (Hedw.) Limpr.
Pottia truncata (Hedw.) Furnr. ex. B.S.G.

Diceliaceae

Dicelium nudum (Dicks.) Brid.

Emphemeraceae

Ephemerum crassinervium (schwaegr.) Hampe
Nanomitrium megalosporum (Aust.) Lindb. ex. Philib.

Funariaceae

Physcomitrella patens (Hedw.) B.S.G.

Tetraphidaceae

Tetraphis pellucida Hedw.

Bryaceae

Pohlia nutans (Hedw.) Lindb.
P. wahlenbergii (Web. and Mohr.) Andr.
Leptobryum pyriforme (Hedw.) Wils.
Bryum capillare Hedw.
B. pseudotriquetrum (Hedw.) Gaetrn., Meyer and Scherb.
Rhodobryum roseum (Hedw). Limpr.

Mniaceae

Mnium affine Bland. ex. Funck
M. cuspidatum Hedw.
M. hymenophylloides Hub.
M. marginatum (With.) Brid. ex. P. 13 ea.uv.
M. medium B.S.G.
M. punctatum Hedw.
M. rostratum Schrad.
M. spinulosum B.S.G.
M. stellare Hedw.

Aulacomniaceae

Aulacomnium palustre (Hedw.) Schwaegr.

Bartramiaceae

Bartramia pomiformis Hedw.

Orthotrichaceae

Orthotrichum obtusifolium Brid.
O. pumilum Sw.
O. sordidum Sull. and Lesq. ex. crust.
O. stellatum Brid.
Ulota crispa (Hedw.) Brid.

Climaciaceae

Climacium americanum Brid.

Hedwigiaceae

Hedwigia ciliata (Hedw.) P. Beauv.

Leskeaceae

Leskea polycarpa Hedw.
Leskaella nervosa (Brid.) Loeske

Thuidiaceae

Anomodon attenuatus (Hedw.) Hiib.
A. minor (Hedw.) Furnr.
A. rostratus (Hedw.) Schimp.
Haplocladium virginianum (Brid.) Broth.
Rauiella scita (P. Beauv.) Reim.
Thuidium delicatulum (Hedw.) B.S.G.
T. recognitum (Hedw.) Lindb.
Abietinella abietina (Hedw.) Fleisch.
Helodium paladosum (Sull.) Aust.

Amblystegiaceae

Campylium chrysophyllum (Brid.) J. Lnage
C. hispidulum (Brid.) Mitt.
C. polygamum (B.S.G.) C. Jens
Leptodictyum brevipes (Card. and Ther. ex. Holz.) Broth.
L. laxirete (Card. and Ther.) Broth.
L. riparium (Hedw.) warnst.
L. sipho (P. Beauv.) Broth.
L. trichopodium (Schaltz) Warnst.
L. vacillans (Sull.) Broth.
Hygroamblystegium fluviatile (Hedw.) Loeske
var. orthocladon (P. Beauv.) Crum, Steere, Anderson
H. tenax (Hedw.) Jenn.

Amblysteigiaceae

Amblystegium juratzkanum Schimp.
A. serpens (Hedw.) B.S.G.
A. varium (Hedw.) Lindb.
Platydictya conferviodes (Brid.) Crum
P. jungermannioides (Brid.) Crum
P. jungermannoides var. minutissima (Sull. and Lesq. ex. Sull.) Crum
Drepanocladus aduncus (Hedw.) Warnst.
D. fluitans (Hedw.) Warnst.
D. sendtneri (Schimp.) Warnst.
Calliergon cordifolium (Hedw.) Kindb.

Brachytheciaceae

Brachythecium acuminatum (Hedw.) Rau and Herv.
B. campestre (C. mull.) B.S.G.
B. calcareum Kindb.
B. oxycladon (Brid.) Jaeg. and Sauerb.
B. plumosum (Hedw.) B.S.G.
B. populeum (Hedw.) B.S.G.
B. reflexum (Starke ex. Web. and Mohr) B.S.G.
B. salebrosum (Web. and Mohr.) B.S.G.
B. rivulare B.S.G.
B. rutabulum (Hedw.) B.S.G.
B. starkei (Brid.) B.S.G.
B. velutinum (Hedw.) B.S.G.
Bryhnia graminicolor (Brid.) Grout
B. novae-angliae (Sull. and Lesq. ex. Sull) Grout
Rhynchostegium serrulatum (Hedw.) Jaeg. and Sauerb.
Eurhynchium hians (Hedw.) Sande Lac.
E. pulchellum (Hedw.) Jenn.

Entodontaceae

Pleurozium schreberi (Brid.) Mitt.

Plagiotheciaceae

Plagiothecium denticulatum (Hedw.) B.S.G.
P. roseanum B.S.G.
P. sylvaticum (Brid.) B.S.G.

Sematophyllaceae

Heterophyllium haldanianum (Grev.) Kindb.
Brotherella recurvans (Michx.) Fleisch.
B. tenurostris (Bruch and Schimp. ex. Sull) Broth.
Sematophyllum adnatum (Michx) Britt.
S. marylandicum (C. Mull.) Britt.

Hypnaceae

Platugyrium repens (Brid.) B.S.G.
Pylaisiella intricata (Hedev.) Grant
P. polyantha (Hedev.) Grant
P. selwynii (Kindb.) Crum, Steere and Anderson
Homomallium adnatum (Hedw.) Broth.
Hypnum lindbergii Mitt.
H. cupressiforme Hedw.
H. curvifolium Hedw.
H. imponens Hedw.
H. pallescens (Hedw.) P. Beauv.
H. pratense Koch ex. Spruce
Isopterygium micans (Sw.) Broth
I. muellerianum (Schimp.) Lindb.

I. striatellum (Brid.) Loeske

Hypnaceae

Ctenidium molluscum (Hedw.) Mitt
Ptilium crista - castrensis (Hedw.) Mitt.

Rhytidiaceae

Rhytidiadelphus triquetrus (Hedw.) Warnst.

Polytrichaceae

Atrichum angustatum (Brid.) B.S.G.
A. undulatum (Hedw.) P. Beauv.
Polytrichum commune Hedw.
P. formosum Hedw.
P. juniperinum Hedw.
P. ohioense Ren. and Card.
P. piliferum Hedw.

Table 17.
MACRO-FUNGI OF THE E. N. HUYCK PRESERVE, RENSSELAERVILLE

FUNGI	LOCATIONS (1)	(2)	(3)	(4)	(5)	(6)
MYXOMYCETES						
★ Ceratiomyxa fruticulosa					X	
★ Fuligo septica	X	X	X	X	X	
★ Lycogala epidendrum	X	X		X		
Stemonites sp.	X		X		X	
ASCOMYCETES						
★ Arachnopeziza aurata	X					
★ Belonidium sulphureum	X					
Bisporella citrina			X			
★ Cistella grevillei	X					
★ Chlorociboria aeruginascens subsp. aeruginascens			X			
★ Chloroencoelia versiformis			X			
★ Coniochaeta ligniaria			X			
Crocicreas cyathoideum var. cyathoideum	X					
Cudonia lutea	X					
★ Daldinia concentrica			X			
★ Helvella lacunosa	X					
★ Helvella macropus	X					
★ Humeria hemisphaerica	X					
Hyaloscypha stevensonii					X	
Hymenoscyphus herborum	X					
Hymenoscyphus scutula var. solani	X					
★ Hypocrea patella					X	
Hypoxylon fragiforme	X					
Lachnum caricis	X					
Lachnum virgineum = Dasyscyphus virgineus	X					
★ Leotia lubrica					X	
★ Mollisia cinerea	X	X				
Orbilia auricolor	X	X				
Orbilia botulispora	X					
Orbilia xanthostigma			X			
Psilachnum chrysostigmum = Pezizella chrysotigma	X					
★ Rutstroemia macrospora	X					
★ Peziza repanda				X		
★ Peziza micropus					X	
★ Scutellinia scutellata	X				X	
★ Spathularia velutipes	X					
★ Strossmayeria basitricha	X					
Xylaria hypoxylon	X					
Xylaria polymorpha					X	

FUNGI	LOCATION(S) (1)	(2)	(3)	(4)	(5)	(6)
BASIDIOMYCETES (GILLED AGARICALES)						
Agaricus sp. CRB250				X		
★ Agaricus haemorrhoidarius	X					
★ Agaricus meleagris					X	
★ Agaricus silvicola	X					
Amanita sp. nov.	X					
Amanita sp. CRB189	X					
Amanita sp. CRB243	X					
Amanita sp. CRB246	X					
★ Amanita brunnescens				X		
★ Amanita caesarea					X	
★ Amanita cothurnata	X					
Amanita flavoconia	X	X				X
★ Amanita fulva	X			X		
★ Amanita inaurata	X					X
★ Amanita muscaria var. formosa						X
★ Amanita pantherina var. multisqamosa						X
★ Amanita porphyria				X		
★ Amanita rubescens	X	X		X		
★ Amanita spissa	X					
★ Amanita virosa	X					
★ Cantharellula umbonata				X		
★ Cheimonophyllum candidissimus =Pleurotus candidissimus	X					
Clitocybe sp. CRB180			X			
★ Collybia dryophila	X				X	
★ Collybia maculata	X					
★ Coprinus lagopus		X				
★ Cortinarius caespitosus				X		
Cortinarius iodes				X		
★ Cortinarius traganus	X					
★ Crepidotus applantaus	X					
★ Crepidotus crocophyllus	X					
★ Cystoderma amianthinum var. amianthinum				X		

FUNGI	LOCATIONS (1)	(2)	(3)	(4)	(5)	(6)
Entoloma griseum			X			
Entoloma luridum				X		
Entoloma murraii =Nolanea murraii =Entoloma cuspidatum	X					
Hygrocybe psittacina =Hygrophorus psittacinus				X	X	
Hygrocybe conica =Hygrophorus conicus	X					
Hypholoma marginatum =H. dispersum =Nematoloma		X				
Inocybe sp. CRB252				X		
Laccaria amethystina	X			X		
Laccaria laccata	X			X	X	
Laccaria ochropurpurea	X					
Lachnella eruciformis	X					
Lactarius sp. CRB155	X					
Lactarius sp. CRB337						X
Lactarius cinereus var. fagetorum	X					
Lactarius deceptivus	X					
Lactarius deliciosus	X					
Lactarius gerardii	X					
Lactarius hygrophoroides					X	
Lactarius lignyotis	X					
Lactarius vinaceorufescens	X			X		
Marasmius sp. CRB57				X		
Marasmius rotula	X			X		
Mycena leaiana	X					
Mycena haematopus	X				X	
Mycena sanguinolenta	X					
Ompahlina epichysium	X					
Oudemansiella radicata	X	X			X	
Panellus stipticus					X	
Paxillus sp. CRB351				X		
Paxillus atrotomentosus	X			X		
Paxillus involutus	X					
Pleurotis ostreatus					X	
Pluteus cervinus	X	X		X	X	
Pluteus flavofuligineus	X					
Pluteus longistriatus				X		
Pluteus lutescens	X					
Psathyrella hydrophila				X		

FUNGI	LOCATIONS (1)	(2)	(3)	(4)	(5)	(6)
Rhodophyllus sp. CRB263						X
★ Russula brevipes var. acrior					X	
★ Russula claroflava	X					
★ Russula cyanoxantha =R. variata			X	X		
★ Russula decolorans	X					
★ Russula mariae	X				X	
Russula sp. CRB145	X					
Tricholomopsis decora	X					
★ Tricholomopsis platyphylla	X	X		X	X	
★ Tricholomopsis rutilans				X		
BASIDIOMYCETES (BOLETES)						
★ Boletus badius	X					
★ Boletus bicolor	X					
★ Boletus calopus	X					
★ Boletus edulis	X			X		X
★ Boletus longicurvipes					X	
★ Boletus miniato-olivaceous				X		
★ Boletus subvelutipes	X	X				
★ Boletus variipes					X	
★ Leccinum aurantiacum	X			X		
★ Leccinum chromapes	X					
★ Leccinum subglabripes		X		X		
★ Suillus americanus						X
★ Suillus brevipes	X					
★ Suillus granulatus				X		
★ Suillus subluteus				X		
★ Strobilomyces floccopus				X		
★ Tylopilus felleus	X				X	
★ Tylopilus ferrugineus						X

FUNGI	LOCATIONS (1)	(2)	(3)	(4)	(5)	(6)
BASIDIOMYCETES (POLYPORES)						
★ Coltricia cinnamomea			X			
★ Daedalea confragosa		X	X			
★ Daedaleopsis confragosa			X			
★ Favolus alveolaris					X	
★ Fomes fomentarius	X	X			X	
★ Fomes igniarius =Phellinus igniarius					X	
★ Ganoderma applantatum	X				X	
★ Ganoderma tsugae	X	X				
★ Laetiporus sulphureus	X			X		
★ Piptoporus betulinus	X	X				
★ Polyporus squamosus	X	X	X		X	
★ Pycnoporus cinnabarinus =Polyporus cinnabarinus				X		
Poria sp.	X					
Trametes hirsuta					X	
★ Trichaptum biformis	X				X	
OTHER BASIDIOMYCETES						
Bovista pila					X	
Calocera viscosa	X			X		
★ Cantharellus cibarius	X					
★ Cantharellus xanthopus	X		X			
★ Christiansenia mycetophila	X					
Clavulina cristata	X			X		
Dacrymyces ellisii	X					
Dacrymyces palmatus	X					
★ Exidia glandulosa			X			
★ Hericium coralloides	X					
★ Hericium ramosum	X					
Hydnellum sp. CRB183	X		X			
Lachnella eruciformis	X					
Lachnella sp. on Spyrea					X	
★ Schizophyllum commune	X					
Stereum hirsutum					X	
★ Tremella frondosa	X					

Site 1: Lincoln Pond area
Site 2: High Trail above Rensselaerville Falls
Site 3: Trail from Mill House over footbridge, and back to the main road on opposite side of Ten Mile Creek
Site 4: Ordway property
Site 5: Both sides of Ten Mile Creek between Lincoln Pond and Lake Myosotis
Site 6: Northeastern shore of Lake Myosotis, especially the town beach and Davis cabin areas

Table 18. Phytoplankton of Myosotis Lake, Edmund Niles Huyck Preserve, 1983-1984.

Chlorophyta
- Ankistrodesmus falcatus
- Ankistrodesmus falcatus v. acicularis
- Ankistrodesmus fractus
- Chlamydomonas sp.
- Chlorogonium elongatum
- Closterium sp.
- Cosmarium sp.
- Dictyosphaerium (Ehrenbergianum)
- Dictyosphaerium pulchellum
- Elakothrix gelatinosa
- Oocystis sp.
- Pediastrum duplex
- Pediastrum simplex
- Pediastrum tetras
- Scenedesmus arenatus
- Scenedesmus quadricauda
- Schroederia setigera
- Selenastrum sp.
- Sphaerocystis (Schroeteri)
- Spondylosum planum
- Staurostrum megacanthum

Euglenophyta
- Mallomonas sp. A
- Mallomonas sp. B
- Mallomonas sp. E/F
- Phacus sp.
- Unknown euglenophyte

Pyrrhopyta
- Ceratium hirundinella
- Glenodinium sp.
- Peridinium inconspicuum
- Peridinium sp.

Cryptophyta
- Cryptomonas erosa
- Cryptomonas ovata
- Cryptomonas sp.

Chrysophyta (Bacillariophyceae)
- Amphiprora ornata
- Asterionella formosa
- Cyclotella comta
- Cyclotella glomerata
- Cyclotella sp.
- Fragilaria construens
- Fragilaria crotonensis
- Fragilaria intermedia
- Melosira spp.
- Navicula sp.
- Nitaschia sigmoidea
- Synedra ulna
- Tabellaria fenestrata
- Tabellaria flocculosa

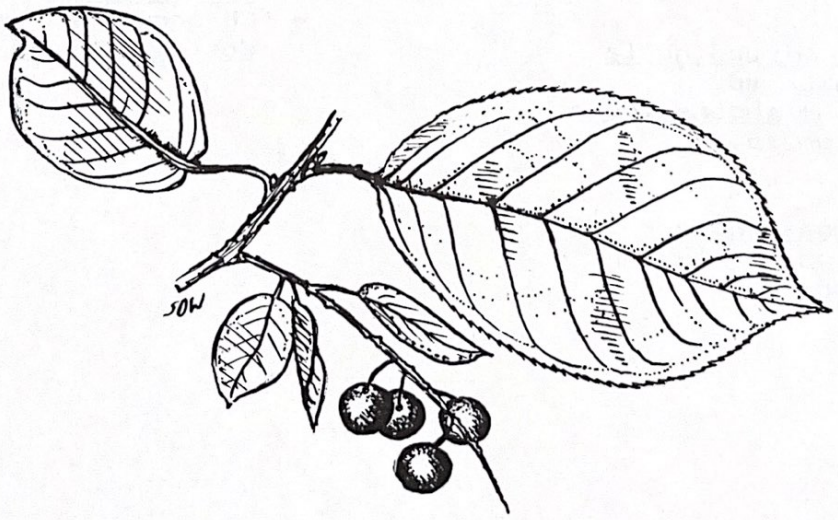
Chrysophyta (Chrysophyceae)
- Dinobryon bavaricum
- Dinobryon sertularia
- Synura uvella
- Uroglenopsis americana

Cyanophyta
- Anabaena flos-aquae
- Anabaena spirioides
- Anabaena (Viquieri) sp.
- Anabaena sp.
- Anacystis sp.
- Aphanizomenon flos-aquae
- Aphanocapsa sp.
- Chroococcus limneticus
- Coelosphaerium naqelianum

Appendix Table 19. List of the corticolous lichens founds on trees on the E. N. Huyck Preserve (Rankert 1973)

---

1. Parmelia aurulenta
2. P. subaurifera
3. P. rudecta
4. P. sulcata
5. P. caperata
6. P. saxatilis
7. Physica millegrana
8. Ph. orbicularis
9. Ph. adscendens
10. Ph. stellaris
11. Ph. grisea
12. Candelaria concolor
13. Lepraria sp.



Appendix Table 20. List of species of pseudoscorpions and terrestrial isopods found on the E. N. Huyck Preserve by Muchmore (1955)

Pseudoscorpions

1. Chthonius tetrachelatus (Preyssler)
2. Syarinus sp. (maybe granulatus)
3. Microbisium brunneum (Hagen)
4. M. confusum Hoff
5. Larca granulata (Banks)
6. Pseudogarypus sp. (new species)
7. Apocheiridium stannardi Hoff
8. Pselophochernes sp. (maybe parvus)
9. Dinocheirus pallidus (Banks)
10. Acuminochernes sp. (new species)
11. Chelifer cancroides (Linnaeus)

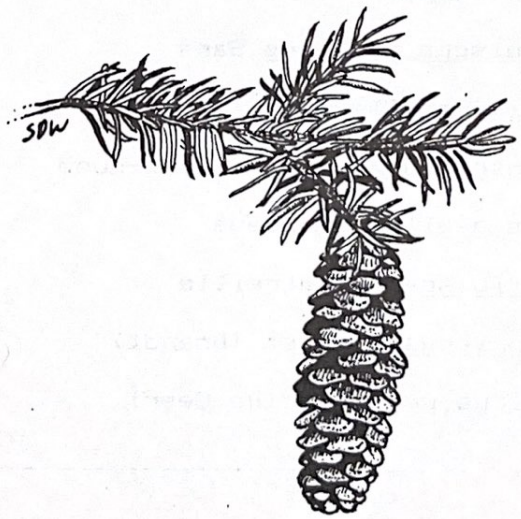
Terrestrial isopods

1. Trichoniscus pygmaeus Sars
2. T. demivirgo Blake
3. Haplophthalmus danicus Budde-Lund
4. Oniscus asellus Linnaeus
5. Porcellio scaber Latreille
6. Tracheoniscus rathkei (Brandt)
7. Cylisticus convexus (De Geer)

Appendix Table 21. Mosquitoes of the E. N. Huyck Preserve collected in 1941 by Arthur Shlaifer, resident biologist.

---

1. *Aedes cinereus*
2. *A. stimulans*
3. *A. excrucians*
4. *A. vexan*
5. *A. intrudens*
6. *A. canadensis*
7. *A. triseriatus*
8. *A. hirsuteron*
9. *Anopheles punctipennis*
10. *An. quadrimaculatus*
11. *An. maculipennes*
12. *Culex apicalis*
13. *Culex salinarius*
14. *Theobaldia morsitans*



Appendix Table 22. Snails and slugs of the E. N. Huyck Preserve collected in 1955 by Muchmore (1959)

---

1. Stenotrema fraternum (Say)
2. Mesodon sayanus (Pilsbry)
3. Triodopsis tridentata (Say)
4. T. albolabris (Say)
5. T. dentifera (Binney)
6. T. notata (Deshayes)
7. Haplotrema concavum (Say)
8. Euconulus fulvus (Muller)
9. Retinella rhoadsi (Pils.)
10. Mesomplix inornatus (Say)
11. M. cupreus (Rafinesque)
12. Paravitrea multidentata (Binney)
13. Hawaiia minuscula (Binney)
13. Ventridens ligerus (Say)
14. V. intertextus (Binney)
15. Zonitoides arboreus (Say)
16. Striatura exigua (Stimpson)
17. Limax maximus Linnaeus
18. Deroceras laeve (Muller)
19. Anguispira alternata (Say)
20. Discus catskillensis (Pils.)
21. Helicodiscus parallelus (Say)
22. Punctum minutissimium (Lea)
23. Arion circumscriptus Johnston

Snails (con't)

24. Philomycus flexuolaris (Raf.)

25. Oxyloma retusa (Lea)

26. Succinea ovalis (Say)

27. Gastrocopta contracta (Say)

28. G. pentodon (Say)

29. G. tappaniana (C. B. Adams)

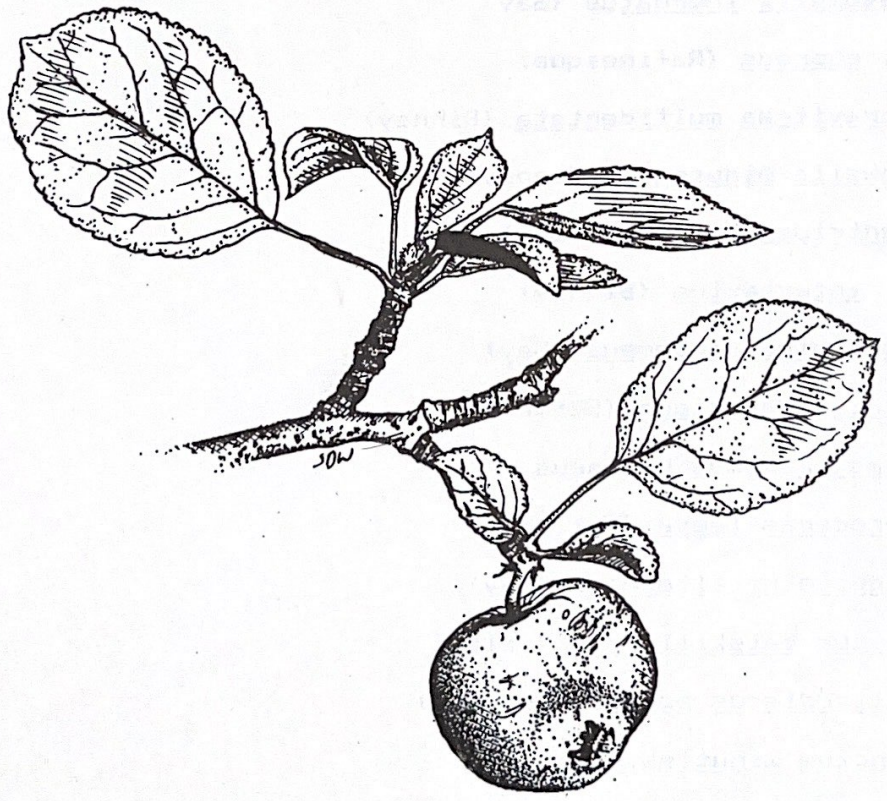
30. Vertigo milium (Gould)

31. V. ventricosa (morse)

32. V. gouldi (Binney)

33. Cionella lubrica (Muller)

34. Carychium exiguum (Say)



Appendix Table 23. Damselflies and dragonflies collected and the date first observed around Lincoln pond on the E. N. Huyck Preserve between 1940 and 1941 by J. Piatt.

Taxonomic category	Date First Observed
Suborder Zygoptera (damselflies)	
1. *Enallagma boreale*	June 6
2. *Chromagrion conditum*	June 6
3. *Lestes inequalis*	June 6
4. *L. vigilax*	July 1
5. *Agrion maculatum*	July 5
6. *Enallagma geminatum*	July 26
Suborder Anisoptera (dragonflies)	
1. *Gomphus graslinellus*	May 25
2. *Basiaeschna janata*	May 28
3. *Anax junius*	May 31
4. *Tetragoneuria spinosa*	May 31
5. *Cordulegaster maculatus*	June 2
6. *Cordulia shurtleffi*	June 2
7. *Gomphus villospies*	June 2
8. *Tetragoneuria spinigera*	June 2
9. *Leucorrhinia hudsonica*	June 5
10. *Dorocordulia libera*	June 6
11. *Leucorrhinia intacta*	June 6
12. *Ladona julia*	June 6
13. *Libellula quadrimaculata*	June 6

Dragonflies (con't)

14. Gomphus abditus	June 7
15. Leucorrhinia glacialis	June 8
16. Tetragoneuria cynosura	June 9
17. Plathemis lydia	June 11
18. Libellula luctuosa	June 18
19. L. pulchella	June 21
20. Cordulegaster diastatops	June 30
21. Aeschna umbrosa	June 30
22. Pachidiplax longpennes	July 6
23. Sympetrum rubicundulum	July 16
24. S. vicium	July 17
25. Mesothemis simplicicollis	July 18
26. Aeschna canadensis	July 25

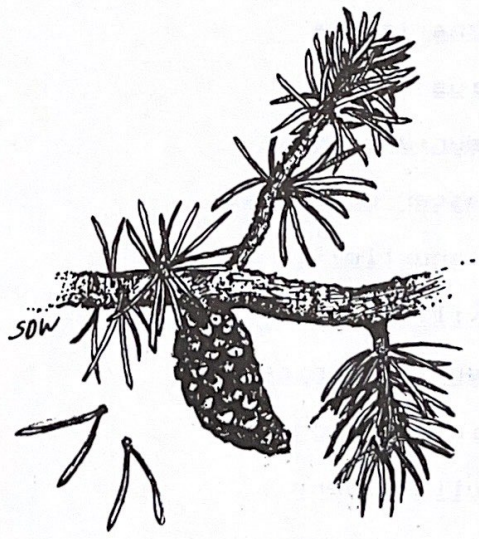


Table 24. A partial list of hydrophytes from Lincoln Pond.

Elodea canadensis

Callitriche palustris

Isoetes engelmanni

Najas flexilis

Potamogeton epihydris

Eleocharis acicularis

Potamogeton berchtoldii var. acuminatus

Sparganium chlorocarpum var. acaule

Leersia oryzoides

Alisma plantago-aquatica

Bidens cernua var. oligodonta

Eleocharis (calva?)

Eleocharis (melanocarpa?)

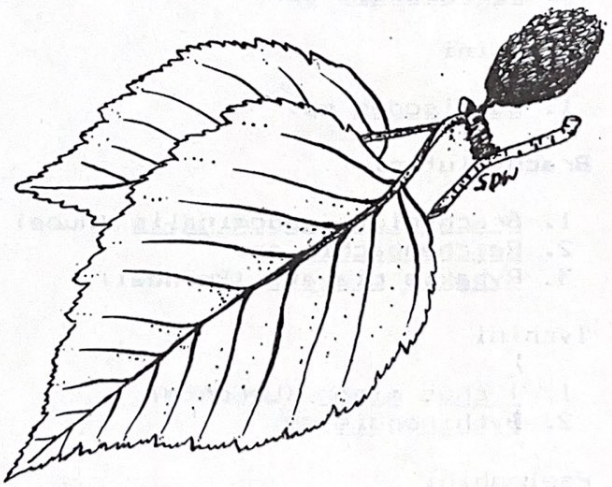


Table 25. Microcoeloptera of the E. N. Huyck Preserve collected by Suter (1974)

Family/Tribe/Species

I. Scydmaenidae

Euconnini

1. Euconnus sp.
2. E. fatuus (LeC.)
3. Napochus sp.

Opresini

1. Opresini miscellus (LeC.)

Neuraphini

1. Stenichus perforatus (Schaum)
2. S. corpusculum (Casey)

Leptoscydmini

1. Leptoscydmus caseyi (Brend.)

II. Pselaphidae

Euplectini

1. Biblopectus sp.

Batrisini

1. Batrisodes sp.

Brachyglutini

1. Brachygluta abdominalis (Aube)
2. Reichenbachia sp.
3. Rybaxis clavata (Brendal)

Tychini

1. Tychus minor (LeConte)
2. Bythinopsis sp.

Pselaphini

1. Pselaphus bellax (Casey)

Table 26. Species of Neuroptera (lacewings), Megaloptera (alderflies, fishflies, hellgrammites), and Mecoptera (scorpionflies) collected on the E. N. Huyck Preserve by Macleod (1961).

Order/Family/Species

I. Neuroptera

Chrysopidae

1. Chrysopa carnes Stephens
2. C. downesi Fitch
3. C. chi Fitch
4. C. placita Banks
5. C. oculata (Say)
6. C. rufilabris Burmeister
7. C. lineaticornis Fitch
8. C. nigricornis Burmeister
9. Meleoma signoretii Fitsh
10. M. emuncta Fitch

Sisyridae

1. Sysyra vicaria (Walker)

Hemerobiidae

1. Hemerobius humulinus Linnaeus
2. H. stigma Stephens
3. H. conjunctus (Fitch)

Coniopterygidae

1. Conwentzia psociformis (Carpenter)

II. Megaloptera

Corydalidae

1. Chauliodes rastricornis (Rambur)
2. Nigronia serricornis (Say)

III. Mecoptera

Panorpidae

1. Panorpa venosa Westwood
2. P. claripennis Hine
3. P. nebulosa Westwood

Table 26 (con't)

4. P. modesta Carpenter
5. P. debilis Hine
6. P. submaculosa Carpenter

Meropididae

1. Merope tuber Newman

Boreidae

1. Boreus brumalis Fitch

Table 27. Ants of the E. N. Huyck Preserve collected by Dreyer (1948)

Subfamily/Species
Ponerinae
1. *Stigmatomma pallipes*
2. *Ponera coarcta*
Myrmicinae
1. *Myrmica* sp.
2. *Stenamma brevicorne*
3. *Aphaenogaster* sp.
4. *Crematogaster lineolata*
5. *Solenopsis molesta*
6. *Leptothorax* sp.
Dolichoderinae
1. *Tapinoma sessile*
Formcinae
1. *Brachymyrmex herri*
2. *Camponotus herculeanus*
3. *C.* sp.
4. *Lasius niger*
5. *Lasius interjectus*
6. *L.* sp.
7. *Formica exsectoides*
8. *F. fusca*
9. *F.* sp.

Table 28. Crayfish of the E. N. Huyck Preserve as identified by Brayton (1971) and Daniels (1986)

Species
1. *Orconectes immunis* (Hagen)
2. *O. propinguus* (Griard)
3. *Cambarus bartoni* (Fab.)
4. *C. robustus* (Girard)
5. *Orconectes rusticus* - invaded Preserve ca. 1983

Table 29. Phalangida (daddy long legs) of the E. N. Huyck Preserve as described by Bishop (1949)

1. *Caddo agilla*
2. *Odiellus pictus*
3. *Hadrobunus maculosus*
4. *Leiobunum bicolor*
5. *L. calar*
6. *L. longipes*
7. *L. nigropalpi*
8. *L. politum*
9. *L. ventricosum*
10. *L. vittatum*

Table 30. Alkalinity, phosphorus concentrations, and inorganic nitrogen concentrations of major tributary waters of Lake Myosotis; Ten Mile Creek and Hagaman Creek, 1983-1984.

	Ten Mile Creek		Hagaman Creek	
	mean(n)	range	mean(n)	range
Alkalinity ($mgCaCO_3 \cdot l^{-1}$)	17.8(9)	11-38	21.7(5)	16-28
Total Phosphorus ($ug \cdot l^{-1}$)	17.7(8)	9.0-23.9	13.6(5)	11.3-15.7
Nitrate + Nitrite - Nitrogen ($ug \cdot l^{-1}$)	76.7(9)	18.0-179.0	14.0(5)	1.0-23.0
Ammonia Nitrogen ($ug \cdot l^{-1}$)	34.6(7)	d.l.-112.0	27.8(4)	5.4-48.7

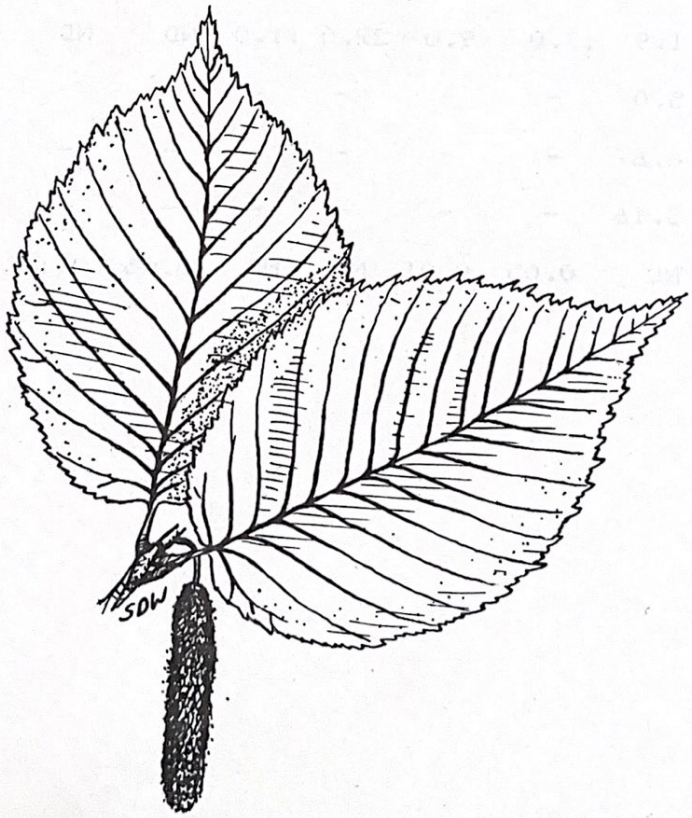


Table 31. Concentrations of major anions and cations in Myosotis Lake, Tenmile Creek, and Hagaman Creek, Edmund Niles Huyck Preserve, 1983-1984.

	Lake Myosotis							
	Concentration ($mg \cdot l^{-1}$)							
	1983	1984						
Parameter	5/16	4/27	5/29	6/3	6/7	6/27	8/2	9/24
Calcium	5.1	4.6	5.8	5.4	4.6	5.5	8.1	9.0
Potassium	0.6	0.6	0.4	0.7	0.6	0.6	0.7	0.8
Magnesium	1.1	1.0	1.0	1.0	1.0	1.0	1.4	1.5
Manganese	0.01	0.04	ND	ND	ND	0.01	0.01	0.11
Sodium	1.9	17.0	9.0	22.0	11.0	ND	ND	4.0
Chloride	5.0	-	-	-	-	-	-	-
Sulfate	6.67	-	-	-	-	-	-	-
Silica	3.16	-	-	-	-	-	-	-
Iron	ND	0.05	0.01	ND	ND	0.05	0.14	0.02

Table 31. (cont'd)

	Ten Mile Creek			Hagaman Creek		
	1983	1984		1983	1984	
Parameter	5/16	4/27	6/3	5/16	4/27	6/3
Calcium	5.5	4.6	5.6	7.8	7.8	7.5
Potassium	0.6	0.5	0.6	0.8	0.8	0.8
Magnesium	1.1	1.0	1.0	1.5	1.2	1.4
Manganese	0.02	0.4	0.01	0.01	.004	0.02
Sodium	1.0	ND	16.0	5.6	23.0	70.0
Chloride	5.0	-	-	15.0	-	-
Sulfate	7.78	-	-	7.78	-	-
Silica	4.86	-	-	4.58	-	-
Iron	0.06	0.08	ND	ND	0.08	ND

Siegfried (1985)

Table 32. Morphometric and hydrographic measurements of Lincoln Pond, New York.

Latitude	(42° 31' 40" N)	Longitude	(74° 09' 33" W)
Maximum length	293 m	Average depth	1.16 m
Maximum width	165 m	Length of shoreline	808 m
Area	3.2 ha	Shoreline development	1.3
Maximum depth	2.9 m	Volume development	1.2
		Relative depth	1.4%

Depth (m)	Area (m^2)	Area (% of total)	Stratum (m)	Volume (m^3)	Volume (% of total)
0	31951	100	0 -0.5	13316	35.8
0.5	21646	67.7	0.5-1.0	9341	25.1
1.0	15868	49.7	1.0-1.5	6954	18.7
1.5	12037	37.7	1.5-2.0	5042	13.6
2.0	8250	25.8	2.0-2.5	2256	6.1
2.5	1624	5.1	2.5-2.9	294	0.8
2.9	126	0.4			
			Total	37203	100.0

Likens et al. (1976)

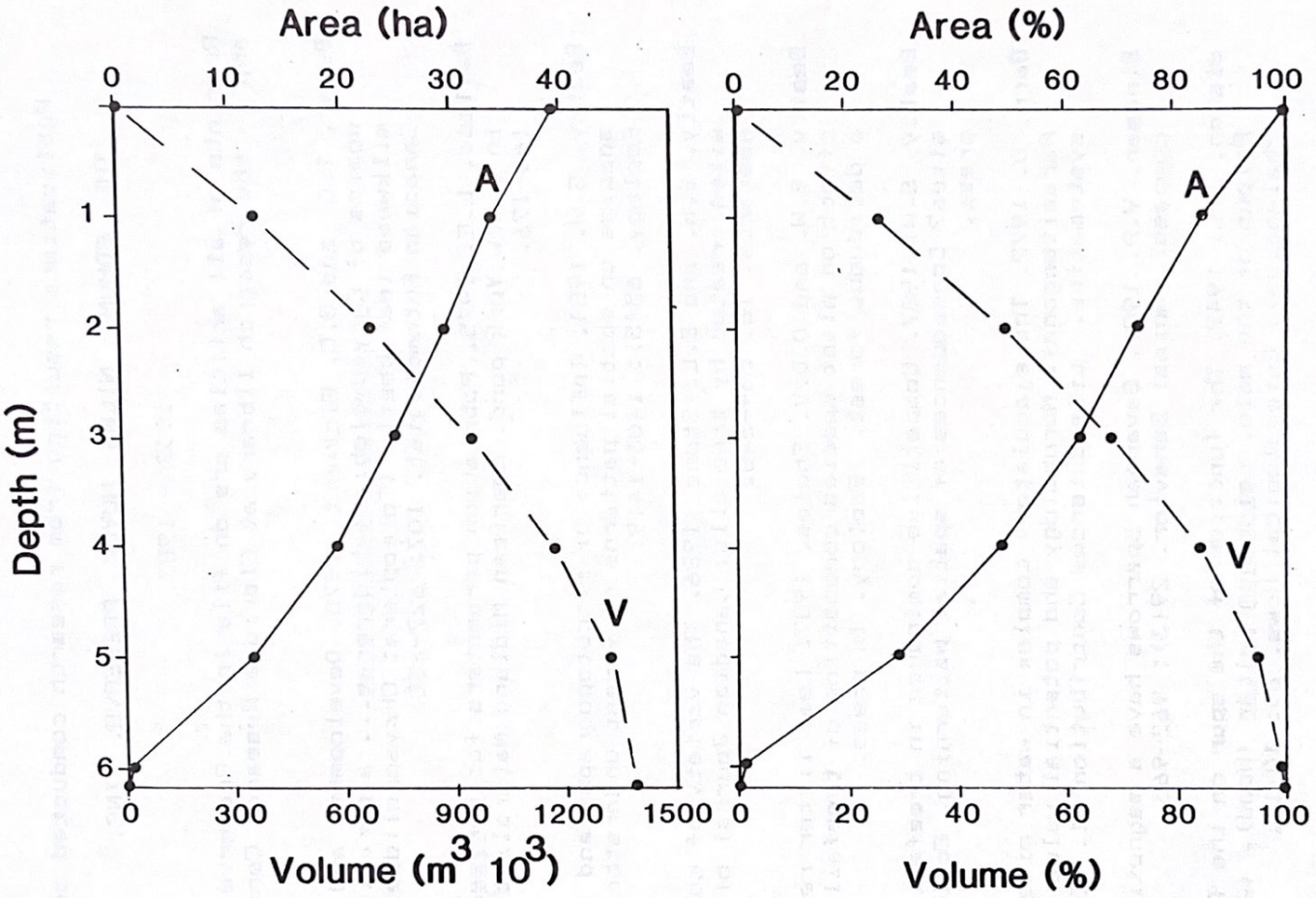


Figure 1. Hypsographic curves for lake Myosotis, Rensselaerville, New York.

Appendix 2

Publications resulting from research conducted on

THE EDMUND NILWS HUYCK PRESERVE, INC.

1937 - 1987

Reprints of all articles are on file in the Preserve office and in the research library at Eldridge Research Center.

Baker, T.C. and G.C. Eickwort. 1975. Development and bionomics of Chrysomelobia labidomerae... a parasite of the milkweed leaf beetle (Coleoptera: Chrysomelidae). Canadian Entomologist. 107: 627-638.

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Barr, D. 1972. The ejaculatory complex in water mites (Acari: Parasitengona): Morphology and potential value for systematics. Life Sciences Contribution 81, 85 pp.

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Brodie, Jr., E.D., D.R. Formanowicz, Jr. 1987. Antipredator mechanisms of larval anurans: protection of palatable individuals. Herpetologica. 43(3): 369-373.

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Cooper, K.W. 1953. Egg gigantism, oviposition, and genital anatomy: their bearing on the biology and phylogenetic position of Orussus (Humenoptera: Siricoidea). Proceedings, Rochester Academy of Science. 10: 38-68.

Cooper, K.W. 1953. Biology of the Eumenine wasps I. The ecology, predation and competition of Ancistrocerus antilope (Panzer). Transactions, American Entomological Society. 79: 13-35.

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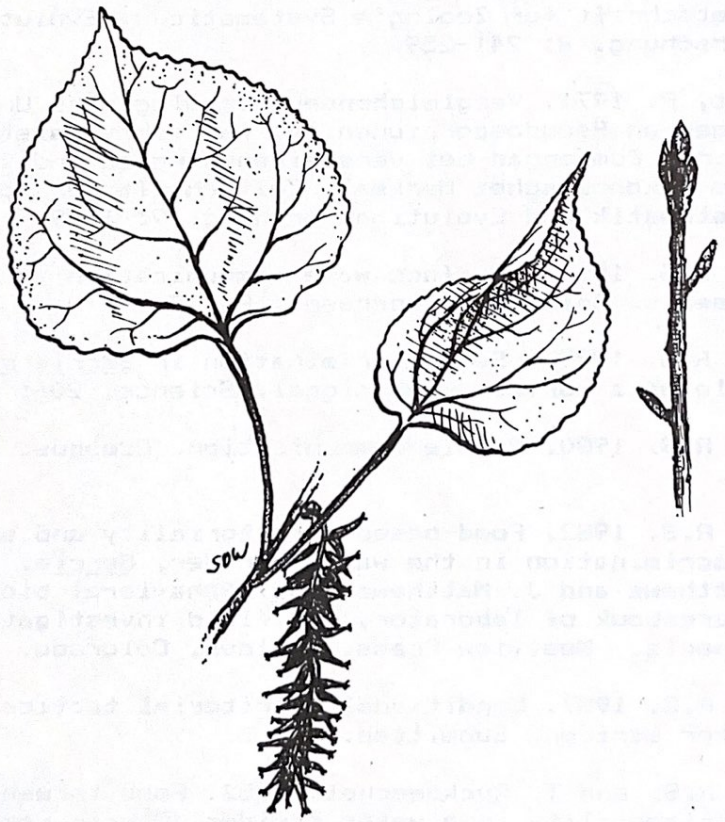

Appendix 3

UNPUBLISHED PRESERVE REPORTS

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APPENDIX 4. Researchers that conducted work on the Edmund Niles Huyck Preserve from 1979 through 1987.

Year	Name	Affiliation	Dept
1979	Bingman, Verner	S.U.N.Y. Albany	Biology
1979	Crankshaw, Owen	Univ. of Georgia	Entomology
1979	Dillon, Patricia	Univ. of Michigan	Biology
1979	Formanowicz, Daniel	S.U.N.Y. Albany	Biology
1979	Hallett, James G.	Texas Tech. Univ.	Biology
1979	Muller-Schwartz D.	Freiburg Univ.	Biology
1979	Brodie, Edmund	Aldelphi Univ.	Biology
1979	Crankshaw, William	Purdue Univ.	Biology
1979	Eisner, Thomas	Cornell Univ.	Ecol. & Syst
1980	Bingman, Verner	S.U.N.Y. Albany	Biology
1980	Crankshaw, William	Purdue Univ.	Biology
1980	Dillon, Patricia	Univ. of Michigan	Biology
1980	Formanowicz, Daniel	S.U.N.Y. Albany	Biology
1980	Herbers, Joan	Univ. of Vermont	Biology
1980	Brodie, Edmund	Aldelphi Univ.	Biology
1980	Eisner, Thomas	Cornell Univ.	Ecol. & Syst
1980	Rozen, Jerome G.	Amer. Mus. Nat. Hist	Entomology
1980	Wilcox, R. Stimson	S.U.N.Y. Binghamton	Biology
1981	Bingman, Verner	S.U.N.Y. Albany	Biology
1981	Sopelak, M. J.	S.U.N.Y. Syracuse	Forest Bio.
1981	Purdon, James R.	S.U.N.Y. Syracuse	Forest Bio.
1981	Herbers, Joan M.	Univ. of Vermont	Biology
1981	Mackey, Michael C.	McGill Univ.	Physiology
1981	Martyniuk, John	S.U.N.Y. Binghamton	Biology

1981	Santiago, Lynda	Adelphi Univ.	Biology
1981	Wilcox, R. Stimson	S.U.N.Y. Binghamton	Biology
1981	Brodie, Edmund	Adelphi Univ.	Biology
1982	Ferson, Scott D.	S.U.N.Y.Stony Brook	Eco.& Evol.
1982	Formanowicz, D. R.	St. Lawrence Univ.	Biology
1982	Mackey, M. C.	McGill Univ.	Physiology
1982	Martyniuk, John	S.U.N.Y. Binghamton	Biology
1982	Pulliam, Ronald H.	S.U.N.Y. Albany	Biology
1983	Buchanan, Claire	American Univ.	Biology
1983	Daniels, Robert	N.Y.S. Museum	Biol. Survey
1983	Hay, Lauren E.	Univ. of Arizona	Geology
1983	Houle, David C.	S.U.N.Y. Stony Brook	Eco.& Evol.
1983	Hey, E. B.	S.U.N.Y. Stony Brook	Eco.& Evol.
1983	Seigfried, Cliff	N.Y.S. Museum	Biol. Survey
1983	Townsend, Daniel S.	S.U.N.Y. Albany	Biology
1983	Wilcox, R. Stimson	S.U.N.Y. Binghamton	Biology
1983	Herbers, Joan M.	Univ. of Vermont	Biology
1983	Tobiessen, Peter	Union College	Biology
1984	Beatty, Susan W.	Univ. California	Geography
1984	Harrison, Fred W.	West. Carol. Univ.	Biology
1984	Houle, David C.	S.U.N.Y. Stony Brook	Eco.& Evol.
1984	Hey, E. B.	S.U.N.Y. Stony Brook	Eco.& Evol.
1984	Seigfried, Cliff	N.Y.S. Museum	Biol. Survey
1984	Sholes, Owen D. V.	Assumption College	Nat. Science
1984	Worthington, Andrea	Siena College	Biology
1984	Herbers, Joan M.	Univ. of Vermont	Biology

1984	Tobiessen, Peter	Union College	Biology
1984	Wilcox, R. Stimson	S.U.N.Y. Binghamton	Biology
1985	Bauhofer, Corlin	Schalmont Middle Sch.	Science
1985	Beatty, Susan W.	Univ. Caliofrnia	Geography
1985	Daniels, Robert	N.Y.S. Museum	Biol. Survey
1985	Harrison, Fred	Western Carolina University	Biology
1985	Martynuik, John	Tufts University	Biology
1985	Sholes, Owen	Assumption College	Biology
1985	Thompson, James D.	S.U.N.Y. Stony Brook	Eco.& Evol.
1985	Harman, Willard	S.U.N.Y. Oneonta	Biology
1985	Harder, Lawrence	Unknown	
1985	Cruzan, Mitch	S.U.N.Y. Stony Brook	Eco.& Evol.
1985	Fleisher, P. J.	S.U.N.Y. Oneonta	Geology
1985	Herbers, Joan	Univ. of Vermont	Biology
1985	Tobiessen, Peter	Union College	Biology
1985	Wilcox, R. Stimson	S.U.N.Y. Binghamton	Biology
1986	Bauhofer, Corlin	Schalmont Middle Sch.	Science
1986	Beatty, Susan W.	Univ. California	Geography
1986	Harrison, Fred.	Western Carolina University	Biology
1986	Marden, James	Univ. of Vermont	Biology
1986	Wolf, Brian	Florida State Univ.	Biology
1986	Runkle, James	Wright State Univ.	Biology
1986	Zotz, Gerhard	S.U.N.Y. Albany	Biology
1986	Daniels, Robert	N.Y.S. Museum	Biol. Survey
1986	Tobiessen, Peter	Union College	Biology

1986	Steadman, David	N.Y.S. Museum	Biol. Survey
1986	Wilcox, R. Stimson	S.U.N.Y. Binghamton	Biology
1986	Rosen, Jerry	American Museum Nat. History	Entomology
1986	Alexander, Byron	Cornell Univ.	Entomology
1986	Busher, Christine	Univ. Connecticut	Biology
1986	Fell, Paul	Connecticut College	Zoology
1986	Elliott, Nancy	Siena College	Biology
1987	Bauhofer, Corlin	Shalamont School	Science
1987	Beatty, Susan	Univ. of California	Geography
1987	Collins, Scott	Univ. of Oklahoma	Biology
1987	Elliott, Nancy	Siena College	Biology
1987	Elliott, William	Hartwick College	Biology
1987	Ibe, Ralph	Queens College	Biology
1987	Marden, James	Univ. of Vermont	Biology
1987	Matthews, Robert	Univ. of Georgia	Entomology
1987	Blanckenhorn, Wolf	SUNY Albany	Biology
1987	Bruno, Dwight	Ouleout Valley Vetern. Clinic	-
1987	Emerick, Charles	SUNY Cobelskill	Fisheries & Wildlife
1987	Haines, John	NYS Museum	Biol. Survey
1987	Herbers, Joan	Univ. Vermont	Biology
1987	Rankin, R. M.	National Museum of Ontario	Herpetology
1987	Renda, Michael	SUNY Albany	Biology
1987	Steadman, David	NYS Museum	Biology
1987	Sholes, Owen	Assumption College	Biology

Appendix 5.

Scientific Advisory Committee of the Edmund Niles Huyck Preserve's Biological Research Station

Chairman

Dr. William J. Hamilton, Jr. Cornell University, Chairman 1938-60

Dr. Babette B. Coleman, University of Rochester, Chairman 1960-73

Dr. Thomas Eisner, Cornell University, Chairman 1973-1981

Dr. Edward Horn, Department of Environmental Conservation, New York, Chairman 1982-1984

Dr. Peter Tobiessen, Union College, Chairman 1984-1986

Other Committee Members

Dr. David G. Barry, Atmospheric Sciences Research Center, Albany, N.Y.

Dr. Sherman Bishop, University of Rochester, Rochester, N.Y.

Dr. Robert Bubeck, U. S. Geological Survey, Albany, N. Y.

Dr. Claire Buchanan, American University, Washington, D.C.

Dr. Kenneth Cooper, Princeton University, Princeton, N.J.

Dr. Denton W. Crocker, Skidmore College, Saratoga Springs, N.Y.

Dr. Lewis A. Eldridge, Jr., M.D., Rensselaerville, N.Y.

Dr. Carl Gans, University of Michigan, Ann Arbor, Mich.

Dr. John Greeley, N. Y. S. Conservation Department, Albany, N.Y.

Dr. Hugo A. Jamback, N. Y. S. Science Service, Albany, N.Y.

Mr. Eugene Kellam, Soil Conservation Service, Albany, N.Y.

Dr. Ralph King, Syracuse University, Syracuse, N.Y.

Dr. Francis L. Lambert, Union College, Schenectady , N.Y.

Dr. Paul C. Lemon, State University of New York, Albany, N.Y.

Dr. Gene Likens, Cornell University, Ithaca, N. Y.

Dr. Robert MacWatters, State University of New York at Cobleskill, N. Y.

Dr. Ernst Mayr, American Museum of Natural History, New York, N.Y.

Dr. Richard Monheimer, N. Y. S. Museum, Albant, N. Y.

Dr. William G. Niering, Connecticut College, New London, Conn.

Dr. G. Kingsley Nobel, American Museum of Natural History, New York, N.Y.

Dr. Thomas Ordway, M.D., Albany Medical College, Albany, N.Y.

Dr. Ralph Palmer, N. Y. S. Museum, Albany, N.Y.

Dr. LaVerne L. Pechuman, Cornell University, Ithaca, N.Y.

Dr. Vincent J. Schaefer, Atmospheric Sciences Research Center, Albany, N. Y.

Dr. Otto Solbrig, Harvard University, Cambridge, Mass.

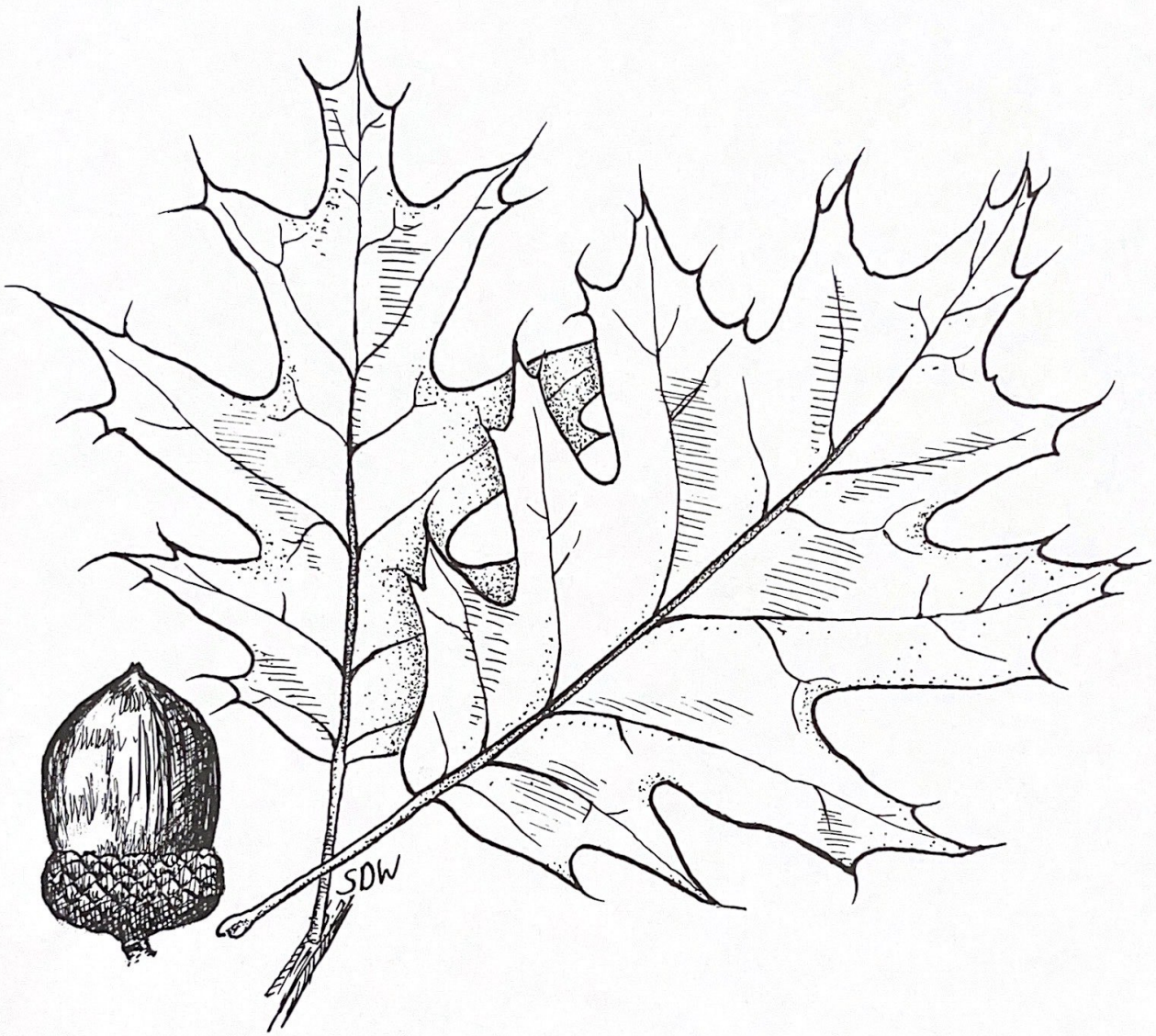
Dr. David Steadman, N. Y. S. Museum, Albany, N. Y.

Mr. James Tigner, Rensselaerville, N. Y.

Mr. William Vogt, National Audubon Socieity, New YorK, N.Y.

Dr. William T. Winne, Union College, Schenectady, N. Y.

Dr. Andrea Worthington, Siena College, Loudonville, N. Y.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